Report Project 3

Interaction for behavioral change in IITB students promoting consistent working habits

Guided by: Prof. Swati Pal

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Declaration

I hereby declare that this project is done as Semester 4 project at IDC, IIT Bombay under the guidance of Prof. Swati Pal as an original work done by me, i.e Amruta Bailke.
I also declare that the ideas are represented in my own words and where other's work in used or referred I have acknowledged and referenced the same.

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Approval Sheet

The project titled “Interaction for behavioral change in IITB students promoting consistent working habits” by Amruta Bailke, is approved for partial fulfillment of the requirement for the degree of Master of Design’ in Interaction Design.

Guide : Swati Pal.

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Abstract

This report presents the development of "League of IITB Legends," a comprehensive time management application tailored for the students of IIT Bombay. The project is motivated by widespread observations of students struggling with time management, leading to underperformance despite high motivation levels. The application integrates the principles of Fogg's Behavior Model and the Transtheoretical Model (TTM) to address various stages of behavioral change, from precontemplation to termination. The design process involved extensive primary and secondary research, including interviews and surveys with IIT Bombay students, which revealed common pain points such as procrastination, distractions, and ineffective traditional tools. Based on these insights, five strategic design interventions were developed: awareness posters with QR codes, seamless integration of academic data through LDAP login, personalized task scheduling, timely notifications, and a reward system with mentorship opportunities. Each intervention targets specific stages of behavioral change, ensuring a comprehensive approach to improving time management skills. The application aims to guide students through a journey of consistent improvement, providing the necessary support and motivation to adopt and maintain effective time management habits. The report details the theoretical foundation, design interventions, and anticipated outcomes of the "League of IITB Legends" application, positioning it as a crucial tool for enhancing academic performance and overall well-being among IIT Bombay students.

Motivation

The motivation for this project stems from my personal struggle with time management and the observation of similar stories across the IIT Bombay campus. Despite having the highest levels of motivation and determination, many students, including myself, often end up underperforming due to a lack of effective time management skills. This persistent issue is not only detrimental to academic performance but also adversely affects overall well-being. Witnessing fellow students face the same challenges, often leading to high stress, compromised work quality, and even health issues, highlighted the urgent need for a practical solution. This project aims to address these challenges by providing a comprehensive tool that empowers students to manage their time efficiently, improve their academic performance, and maintain a healthier balance between their academic, personal, and social commitments.

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1 Introduction

The academic journey at IIT Bombay is renowned for its rigor, innovation, and intellectual challenge. Situated within this esteemed institution, students are exposed to a wealth of opportunities for growth and learning across various disciplines. However, along with these opportunities come significant demands and pressures that can often overwhelm even the most diligent of students.

Within this context, the management of time emerges as a critical factor in determining academic success and personal well-being. Yet, despite its importance, many students struggle to navigate the complexities of time management effectively. The relentless pace of academic coursework, coupled with extracurricular commitments and personal responsibilities, creates a landscape where prioritization and organization become paramount.

Unfortunately, the reality for many students is characterized by a cycle of procrastination, last-minute rushes, and compromised work quality. The allure of immediate gratification often leads to delays in tackling assignments or studying for exams until the eleventh hour. This phenomenon not only undermines academic performance but also contributes to heightened stress levels and decreased overall satisfaction with the learning experience.

The consequences of poor time management extend beyond the academic realm, impacting students' health and well-being in profound ways. All-night study sessions and frantic attempts to meet deadlines can disrupt sleep patterns, increase stress levels, and exacerbate feelings of fatigue and burnout. Left unchecked, these effects can have long-lasting implications for students' physical and mental health, jeopardizing their ability to thrive both academically and personally.

In light of these challenges, there is a pressing need for innovative solutions that empower students to take control of their time and cultivate healthier work habits. Traditional methods of time management, while valuable, often fall short of providing the motivation and support necessary for sustained behavioral change. Recognizing this gap, this project endeavors to harness the power of gamification—a proven approach to engaging users and driving behavior change—in developing a solution tailored specifically to the needs of IIT Bombay students.

By transforming the process of time management into a gamified experience, the project aims to make it more engaging, rewarding, and sustainable. Through a combination of interactive challenges, progress tracking, and incentivized rewards, this gamified application seeks to instill habits of consistency, focus, and resilience among students. By promoting a proactive approach to task management and encouraging students to work steadily towards their goals, the project aspires to foster a culture of productivity and well-being within the IIT Bombay community.

In the following sections, the report will delve deeper into the objectives, scope, and methodology of the project, outlining its approach to designing and implementing a gamified

application for behavioral change among IIT Bombay students. This project aspires to create a transformative tool that enhances academic performance and enriches the overall student experience at IIT Bombay.

1.1 Defining the problem space

The problem space for this project encompasses the challenges faced by students at IIT Bombay in managing their time effectively, maintaining consistent work habits, and achieving optimal academic performance. These challenges are rooted in the demanding nature of academic coursework, extracurricular commitments, and personal responsibilities, which often lead to stress, procrastination, and last-minute rushes to meet deadlines.

1.1.1 Time Management Challenges

Students at IIT Bombay often juggle multiple courses, projects, and assignments simultaneously, making it challenging to prioritize tasks and allocate time effectively.
The fast-paced academic environment and frequent assessments contribute to a constant sense of urgency, leaving little room for long-term planning and organization.
Without effective time management strategies in place, students may find themselves overwhelmed by competing demands and struggle to meet deadlines consistently.

1.1.2 Procrastination and Last-Minute Work

Procrastination is a common phenomenon among students, characterized by the tendency to delay tasks until the last minute.
While procrastination may provide temporary relief from feelings of stress or anxiety, it often results in suboptimal work quality, increased pressure, and a heightened risk of burnout.
Last-minute rushes to complete assignments or study for exams can lead to errors, oversights, and missed learning opportunities, ultimately undermining academic performance and confidence.

1.1.3 Health and Well-being Impacts

The high-pressure academic environment at IIT Bombay can take a toll on students' physical and mental health, leading to symptoms of stress, fatigue, and exhaustion.
All-night study sessions and last-minute cramming sessions are common practices among students, but they can have detrimental effects on sleep patterns, cognitive functioning, and overall well-being.
Chronic sleep deprivation and stress-related health issues can impair academic performance, diminish quality of life, and increase the risk of long-term health problems if left unaddressed.

1.1.4 Need for Sustainable Solutions

While traditional methods of time management, such as planners and to-do lists, offer some degree of support, they may not address the underlying causes of procrastination or provide sufficient motivation for behavioral change.
Existing productivity apps and tools focus primarily on task organization and time tracking but may lack the engagement and incentives needed to promote lasting changes in work habits.
There is a need for a comprehensive and sustainable solution that combines effective time management strategies with motivational incentives and personalized support to empower students to work smarter, not just harder.
The problem space for this project revolves around the complex interplay of time management challenges,

procrastination tendencies, and health-related impacts experienced by students at IIT Bombay.

2 Secondary Research

2.1 Designing for behavioral change

Recognizing the complexities involved in modifying human behavior, whether it's adopting new habits, breaking old patterns, or maintaining desired actions over time.

2.1.1 Motivation

Motivation plays a central role in driving behavioral change. It encompasses the desire, incentive, or drive that compels individuals to take action. Understanding what motivates individuals—whether it's intrinsic factors such as personal values and goals or extrinsic factors such as rewards and recognition—is essential for designing interventions that resonate with their needs and preferences.

2.1.2 Ability

Ability refers to the individual's capacity to perform the desired behavior. It encompasses factors such as knowledge, skills, resources, and environmental factors that influence one's ability to engage in a particular behavior. Designing interventions that simplify tasks, remove barriers, and provide necessary resources can enhance individuals' ability to adopt and maintain desired behaviors.

2.1.3 Triggers

Triggers are cues or stimuli that prompt individuals to engage in a specific behavior. These triggers can be internal (e.g., thoughts, emotions) or external (e.g., reminders, environmental cues). Understanding the role of triggers in initiating and sustaining behavior change is essential for designing interventions that effectively prompt action at the right time and place.

2.1.4 Context

Behavioral change occurs within a specific context, influenced by various situational factors such as social norms, cultural beliefs, and environmental conditions. Understanding the contextual factors that impact behavior can help identify leverage points for intervention and tailor strategies to fit the unique needs and circumstances of individuals and communities.

2.1.5 Feedback and Reinforcement

Feedback and reinforcement mechanisms play a crucial role in shaping behavior. Providing timely feedback on progress, acknowledging achievements, and offering rewards or incentives can motivate individuals to continue engaging in desired behaviors. Understanding how to design effective feedback and reinforcement systems is essential for sustaining long-term behavior change.

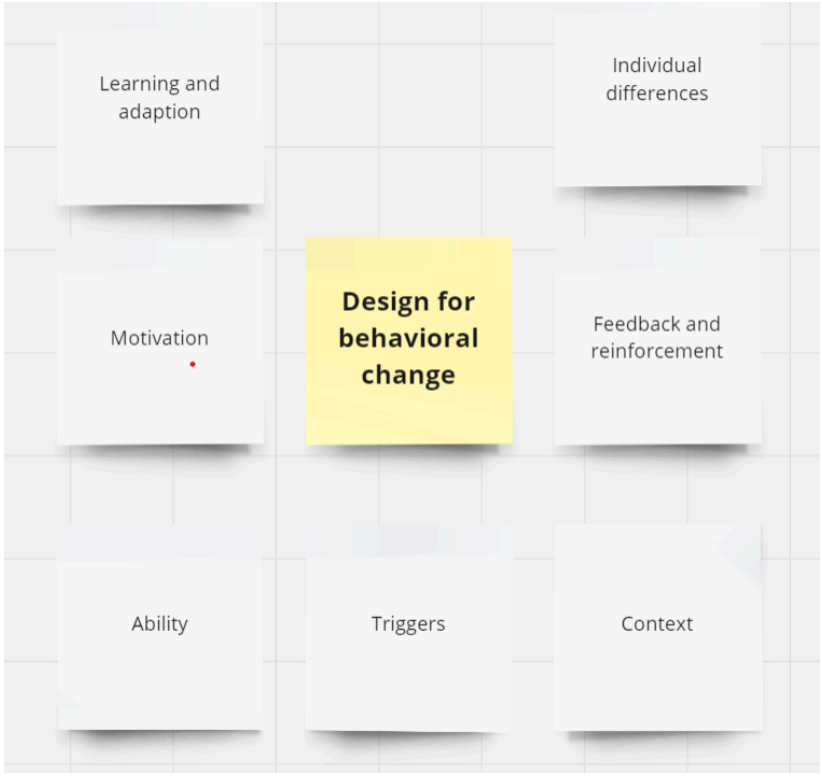
2.1.6 Individual Differences

Individuals vary in their readiness to change, personality traits, learning styles, and preferences. Recognizing and accommodating these individual differences is key to designing interventions that are inclusive, personalized, and responsive to diverse needs and preferences.

2.1.7 Continuous Learning and Adaptation

Behavior change is a dynamic process that requires continuous learning, adaptation, and refinement of interventions over time. Monitoring outcomes, gathering feedback, and iteratively adjusting strategies based on insights gained from real-world implementation are essential

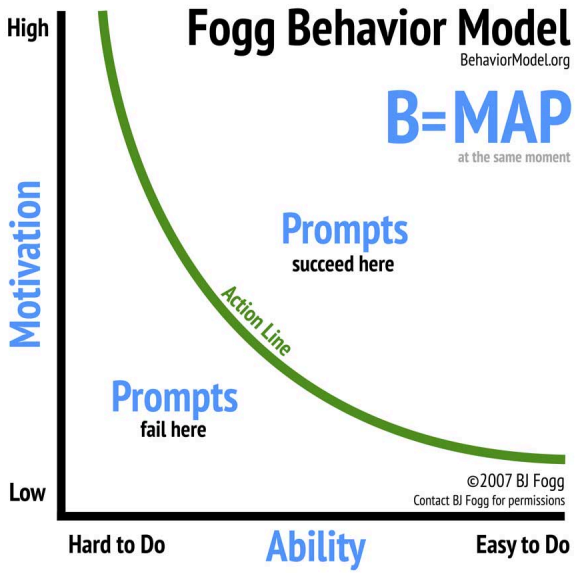
for optimizing the effectiveness of behavioral change interventions.
Through a comprehensive understanding of the factors influencing behavior change, interventions can be designed to maximize engagement, motivation, and sustained impact, ultimately empowering individuals to adopt and maintain healthier behaviors and habits.



2.2 Understanding Behavioral Change Models

2.2..1 Fogg's Behavioral Model

Developed by Dr. BJ Fogg, the Fogg Behavioral Model (FBM) posits that behavior change occurs when three key elements converge: motivation, ability, and triggers. According to the FBM, for a behavior to occur, an individual must be sufficiently motivated, have the ability to perform the behavior, and be prompted by a trigger or cue. The model suggests that behavior change interventions should focus on increasing motivation, simplifying the desired behavior, and providing effective triggers to prompt action.



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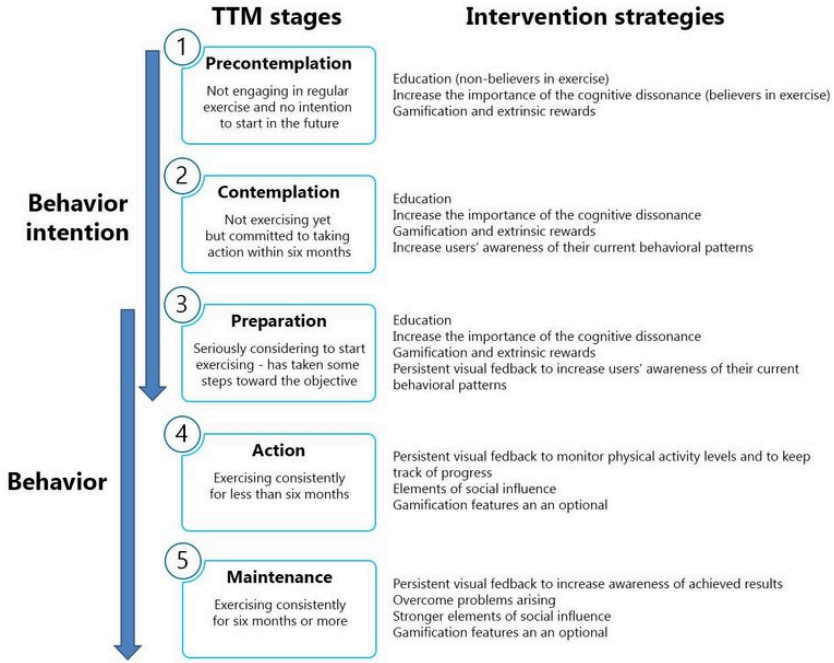
Source: Behaviourmodel.org

2.2.2 Stages of Change Model (Transtheoretical Model)

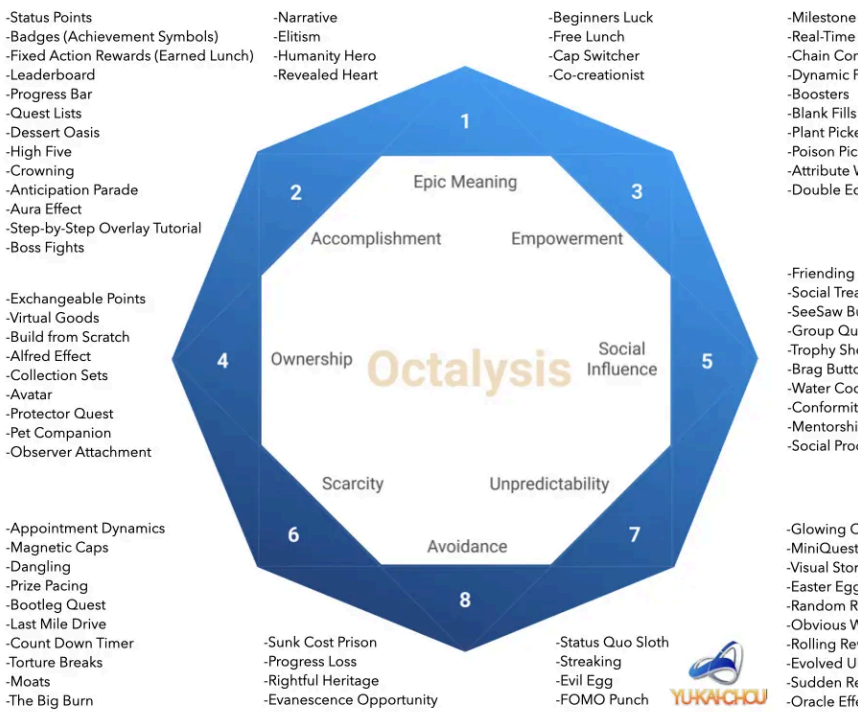
The Stages of Change Model, also known as the Transtheoretical Model (TTM), proposes that behavior change occurs in a series of distinct stages: pre-contemplation, contemplation, preparation, action, maintenance, and termination. According to the model, individuals progress through these stages in a cyclical manner, with each stage representing a different level of readiness to change. The model emphasizes the importance of tailoring interventions to match individuals' readiness to change and providing support throughout the process of behavior change.



Source: Research gate

2.2.3 The Octalysis Model

The Octalysis Model is a gamification framework developed by Yu-kai Chou, which breaks down the essence of motivation and applies it to various contexts, including game design, marketing, education, and personal development. It consists of eight core drives that influence human behavior, each representing different motivational factors that drive engagement and participation. The Octalysis Model provides a comprehensive framework for understanding what motivates individuals to take action and how to design experiences that leverage these motivations effectively.



Source: yukaichou
The Eight Core Drives of the Octalysis Model

Epic Meaning & Calling
This core drive is associated with the human desire to be part of something greater than oneself. It involves engaging in activities that contribute to a meaningful purpose or mission, whether it's making a difference in the world, advancing a cause, or fulfilling a personal calling. Examples include participating in charity work, volunteering for a cause, or joining a movement that aligns with one's values.

Development & Accomplishment
This core drive is driven by the desire for personal growth, mastery, and achievement. It involves overcoming challenges, acquiring new skills, and achieving tangible outcomes that demonstrate progress and success. Examples include completing tasks, earning badges, leveling up, or reaching milestones in a game or learning environment.

Empowerment of Creativity & Feedback
This core drive is fueled by the desire to express creativity, innovate, and receive feedback on one's efforts. It involves opportunities for self-expression, problem-solving, and experimentation, as well as constructive feedback that fosters learning and improvement. Examples include creating artwork, designing solutions to problems, or receiving constructive criticism on a project.

Ownership & Possession
This core drive is driven by the desire to possess and control resources, assets, or territory. It involves acquiring, collecting, and managing possessions that hold value or significance, whether it's virtual goods in a game, real-world assets, or personal achievements. Examples include collecting virtual items, customizing avatars, or acquiring real-world rewards and incentives.

Social Influence & Relatedness
This core drive is centered around the desire for social connection, belonging, and recognition. It involves engaging with others, building relationships, and gaining approval or status within a social group. Examples include socializing with friends, participating in community events, or receiving likes and comments on social media posts.

Scarcity & Impatience
This core drive is driven by the fear of missing out and the desire for scarce or limited resources. It involves creating a sense of urgency, exclusivity, and anticipation that motivates individuals to take immediate action. Examples include limited-time offers, exclusive access to content or events, or countdown timers that create a sense of urgency.

Unpredictability & Curiosity
This core drive is fueled by the desire for novelty, mystery, and surprise. It involves introducing elements of unpredictability, randomness, or uncertainty that pique curiosity and keep users engaged. Examples include mystery boxes, random rewards, or hidden Easter eggs in a game or product.

Loss & Avoidance
This core drive is driven by the desire to avoid pain, loss, or negative consequences. It involves creating incentives or consequences that motivate individuals to take action to avoid undesirable outcomes. Examples include FOMO, loss aversion, or penalties for inaction or non-compliance.
Applications of the Octalysis Model:

Game Design
The Octalysis Model is widely used in game design to create engaging and immersive gaming experiences that motivate players to continue playing and achieving goals.

Marketing
In marketing, the Octalysis Model is used to design marketing campaigns, loyalty programs, and customer engagement strategies that appeal to consumers' motivations and drive desired behaviors.

Education
In education, the Octalysis Model is applied to design learning experiences, training programs, and educational games that motivate students to learn, engage with course materials, and achieve learning objectives.

Personal Development
In personal development, the Octalysis Model is used to identify and leverage motivational factors that drive behavior change, goal achievement, and personal growth.

The Octalysis Model provides a powerful framework for understanding human motivation and designing experiences that tap into these motivations to drive engagement, participation, and desired outcomes.

2.3 Research papers

"The Effects of Time Management Skills on Academic Performance in College Students"
by Zimbardi et al. (2019)

Experiment Methodology:

Study Design
This research employed a longitudinal study design to investigate the relationship between time management skills and academic performance among college students.

Participants
The study recruited a sample of college students from various academic disciplines and educational institutions.

Data Collection
Data on time management skills and academic performance were collected through self-report questionnaires, standardized tests, and academic records.

Time Management Skills Assessment
Time management skills were assessed using validated measures such as the Time Management Behavior Scale (TMBS) or similar instruments. These measures typically assess various aspects of time management behavior, including goal setting, planning, prioritization, and self-regulation.

Academic Performance Measurement
Academic performance was measured using objective indicators such as grade point average (GPA), course completion rates, and standardized test scores.

Data Analysis
Statistical analyses, such as correlation analysis, regression analysis, or structural equation modeling, were conducted to examine the relationships between time management skills and academic performance while controlling for potential confounding variables.

Key Findings

1. The study found a significant positive correlation between time management skills and academic performance among college students.
2. Specifically, students with higher levels of time management skills tended to achieve higher academic grades, complete courses more successfully, and perform better on standardized tests.
3. These findings suggest that effective time management is a crucial determinant of academic success and should be prioritized in educational interventions and support programs.

"Understanding the Dynamics of Procrastination: A Review of Time Management Interventions" by Steel (2007)

Experiment Methodology:

Literature Review
This research conducted a comprehensive review of existing literature on time management interventions and procrastination.

Inclusion Criteria
The review included studies that investigated the effectiveness of various time management interventions,

such as goal setting, planning, scheduling, self-monitoring, and self-regulation.

Data Extraction
Data were extracted from relevant research articles, including study design, participant characteristics, intervention components, outcomes measured, and key findings.

Quality Assessment
The quality of included studies was assessed based on criteria such as study design, sample size, measurement tools, and statistical analysis methods.

Synthesis of Findings
Findings from the included studies were synthesized to identify common themes, trends, and effective strategies for addressing procrastination through time management interventions.

Key Findings

1. The review identified several effective time management interventions for reducing procrastination and improving productivity among students.
2. These interventions included setting specific goals, breaking tasks into manageable steps, using planning and scheduling tools, employing self-monitoring techniques, and enhancing self-regulation skills.
3. The review highlighted the importance of tailoring interventions to individual needs and preferences, as well as providing ongoing support and reinforcement to maintain behavior change over time.

3 Primary Research

Primary research study conducted at IIT Bombay to investigate students' time management patterns, daily activities, and strategies for managing academic, personal, and social commitments. The research aimed to gain insights into how students prioritize and allocate their time, their approaches to meeting deadlines, and the effectiveness of their time management strategies.

Objective

Understanding Time Management Patterns Among IIT Bombay Students.

Methodology
Participants: The study recruited a sample of students from various academic disciplines at IIT Bombay (31 participants)

Data Collection: Data were collected through semi-structured interviews conducted with participants. The interviews covered topics such as study patterns, daily activities, time management strategies, and experiences around managing academic, personal, and social commitments.

Data Analysis: Thematic analysis was employed to identify key themes, patterns, and insights from the interview responses. Common patterns and recurring themes were identified and analyzed to draw conclusions and insights.

Questions Asked:

1. Can you describe your typical study patterns and daily activities?
2. How do you manage your academic, personal, and social commitments?
3. How do you prioritize tasks and allocate time to different activities?
4. What strategies do you use to manage your time around deadlines?

5. Have you ever experienced challenges or difficulties with time management? If so, can you describe them?
6. What tools or methods do you use to help manage your time effectively?
7. How do you feel about your current time management skills? Are there areas you would like to improve?

"My typical day involves attending classes, followed by spending time in the library or my room for studying. However, I often find myself **getting distracted by social media or chatting with friends**, which eats into my study time."

"Balancing academic commitments with personal and social activities is a constant struggle. I try to set aside specific times for studying, but **I often end up sacrificing study time for social events** or personal activities, leading to **last-minute rushes** to complete assignments."

"I try to **prioritize tasks based on deadlines** and importance, but it's challenging to stick to a schedule. I've tried using **sticky notes and planners** to stay organized, but I often **forget to update them** or lose track of my tasks."

"I usually **start with good intentions and motivation** at the beginning of each task, but as the deadline approaches, I find myself **procrastinating** and leaving things until the **last minute**. It's a constant cycle of procrastination and **stress.**"

"Yes, I've struggled with time management, especially during exam season. Last semester, **I ended up getting hospitalized** due to exhaustion and stress from staying up all night to finish assignments and study for exams."

"I've tried using **digital tools like calendar apps and productivity apps**, but I find them **overwhelming and difficult to maintain**. I also use sticky notes and planners, but I often forget to use them consistently."

"Honestly, I feel like my time management skills could use a lot of improvement. I want to become better at prioritizing tasks, **avoiding procrastination, and finding a better balance** between academic and personal commitments to avoid situations like getting hospitalized during exams."

Key Takeaways

1. Working at the Edge of Deadlines
   Many students reported working at the edge of deadlines, often procrastinating until the last minute before completing assignments or studying for exams. This tendency to procrastinate suggests a need for better time management strategies and habits to avoid last-minute rushes and reduce stress.

2. Regret Over Prioritizing Personal or Social Commitments
   Some students expressed regret over prioritizing personal or social commitments over academic commitments, leading to feelings of guilt or frustration.

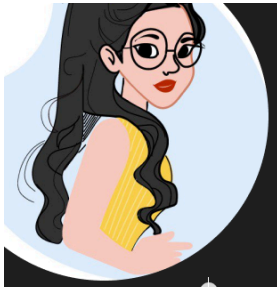
Balancing academic, personal, and social commitments emerged as a common challenge, highlighting the need for better prioritization and time allocation strategies.

3. Limited Effectiveness of Time Management Tools
   While students reported using tools such as sticky notes and schedules to manage their time, many found it difficult to adhere to their schedules for an extended period.
   This suggests that while traditional time management tools can be helpful, they may not always be sufficient for sustaining effective time management habits.

4. Desire for Improvement:
   Many students expressed a desire to improve their time management skills and habits, recognizing the importance of effective time management for academic success and overall well-being.
   This highlights an opportunity for interventions and support programs aimed at enhancing time management skills among students.

5. Conclusion:
   By understanding students' experiences and perspectives on time management targeted interventions and resources can be developed to help students improve their time management skills and succeed academically.

Persona 1



Shreya

Shreya is a social person. She likes talking to people in and after class. Makes plans for outings and chilling sessions at hostel.

	TASK GIVEN	START	MID	DEADLINE
THINKING:	Calculates the time required for the task.	Should start the task.	Should start the task.	Have to start the task.
FEELING:	Confident that she can complete the task within the given time period.	A social gathering is happening today, can she do the task later?	She can do it later and spend time with her friends exploring eateries around.	Don't have enough time to go through all the topics. Anxious.
DOING::	Makes note in her notebook	Going to the social gathering and stacking the task to the next day/stage.	Goes on outing, stacking the task at next stage.	Completes some part of the work pulling an all nighter and submits the task,

Persona 2

Kartik

John is a gamer and spends most of his time playing games on his system. He spends most of his time in his hostel room playing games.

	TASK GIVEN	START	MID	DEADLINE
THINKING:	It should take about 9 to 10 hours to complete.	Should start the task.	Should start the task.	Have to start the task.
FEELING:	I can definitely manage in the coming week.	Will complete one level and continue with task after.	Will complete one level and continue with task after.	Don't have enough time to go through all the topics. Anxious.
DOING::	Calm and takes on with his day as usual.	Ends up playing and stacking the due work to the next day.	Ends up playing and stacking the due work to the next day.	Completes some part of the work pulling an all nighter and submits the task,

Persona 3

Dhairya

Dhairya enjoys outgings, spends his time with friends in hostel room. He also enjoys watching animes and Netflix.

	TASK GIVEN	START	MID	DEADLINE
THINKING:	Calculates the time required for the task.	Should start the task.	Should start the task.	Have to start the task.
FEELING:	Planing to work with his friends.	We will all work together and finish the task in no time.	Can finish the task and enjoy with friends alongside.	Don't have enough time to go through all the topics. Anxious.
DOING::	Talks to a couple of friends and decides to meet-up at his room.	Ends up chatting with friends and stacking the task for the next meet-up	Start with the task, gets distracted midway - ends up stacking for next meetup	Completes some part of the work pulling an all nighter and submits the task,

4 Defining the project

Problem Statement:
Many students at IIT Bombay, despite high levels of motivation and intellectual capability, struggle with time management. This often leads to last-minute rushes, poor-quality work, and significant stress, adversely affecting their academic performance and overall well-being. Traditional tools like sticky notes and planners fail to sustain their engagement and effectiveness over time. There is a need for an innovative solution that addresses these challenges by fostering consistent working habits, improving time management, and enhancing productivity without compromising health.

Objectives:

1. Develop a Comprehensive Time Management tool that integrates academic schedules and personal tasks, promoting effective time management.
2. Understanding and Incorporate Behavioral Change Models: Utilize Fogg's Behavior Model and the Transtheoretical Model (TTM) to design interventions that guide students through various stages of behavior change.
3. Increase Awareness and Engagement: Use intriguing interventions to increase awareness of time management in IITB students.
4. Provide Personalized Scheduling:
   Allow students to sync academic data, create personalized schedules, and receive timely reminders to stay on track.
5. Encourage consistent task completion through a gamified reward system and offer mentorship opportunities for additional support.
6. Long-Term Habit Formation: Include long-term engagement strategies such as advanced goal-setting features, community support, and periodic challenges to make effective time management a permanent habit.

Scope:

1. Target Audience: The application is designed specifically for IIT Bombay students, addressing their unique academic and social environments.
2. Behavioral Stages Coverage: The application covers all stages of the TTM, from precontemplation to termination, ensuring comprehensive support throughout the behavioral change process.
3. Integration with Academic Systems: Syncs with the IIT Bombay academic calendar and course management systems via LDAP login for accurate task tracking and scheduling.
4. Gamification Elements: Incorporates gamified elements such as points, badges, and rewards to enhance motivation and engagement.
5. Support and Resources: Provides resources such as study tips, time management strategies, and peer mentorship to assist students in achieving their goals.

Limitations:

1. User Adoption: Success depends on students' willingness to adopt and consistently use the application. Initial reluctance or lack of engagement could hinder its effectiveness.
2. Technology Constraints: The application's performance relies on the seamless integration with IIT Bombay's existing IT infrastructure, which may present technical challenges.
3. Behavioral Change Resistance: Some students may resist changing their established habits despite the application's support and incentives.
4. Customization Needs: The diverse needs and preferences of students may require extensive customization options, complicating the design and development process.
5. Long-Term Sustainability: Maintaining student interest and engagement over the long term can be challenging, especially after the initial novelty wears off.

5 Approach

By studying various behavioral change models, such as Fogg's Behavior Model and the Transtheoretical Model (TTM), and considering the specific context and challenges faced by IIT Bombay students, we developed solutions to address their unique needs and pain points.

Schedules and Pain Points:

IIT Bombay students have rigorous academic schedules, often juggling multiple courses, projects, and extracurricular activities. Common pain points identified through primary research include

Procrastination: Many students delay starting their tasks until deadlines are imminent, leading to high stress and lower quality work.

Distractions: Social media and social commitments frequently disrupt study plans, making it difficult to stay focused.

Ineffective Traditional Tools: While tools like sticky notes and planners are popular, students often fail to maintain them over the long term due to lack of engagement and consistency.

Health Issues: In extreme cases, poor time management has led to serious health consequences, such as a student being hospitalized due to stress and exhaustion from pulling all-nighters during exam periods.

Fogg's Behavior Model (FBM):

Core Components: FBM suggests that behavior occurs when motivation, ability, and prompts converge simultaneously.

1. Motivation: The desire to perform a behavior. It can be driven by different factors such as personal goals, external rewards, or intrinsic satisfaction.

2. Ability: The capacity to perform the behavior. This includes having the necessary skills, resources, and time to complete the task.

3. Prompts: Triggers that initiate the behavior. These can be notifications, reminders, or environmental cues that encourage the user to take action at the right time.

Application: To foster better time management, we focused on enhancing students' motivation, simplifying the task (increasing ability), and providing timely prompts to initiate actions.

Transtheoretical Model (TTM):

Stages of Change: TTM identifies stages such as Precontemplation, Contemplation, Preparation, Action, Maintenance, and Termination.

1. Precontemplation: Individuals are not yet considering change. They may be unaware of the need to manage their time better or may be resistant to change.

2. Contemplation: Individuals are aware of the need for change and are considering it but have not yet made a commitment to take action.

3. Preparation: Individuals are intending to take action soon and may begin making small changes.

4. Action: Individuals actively take steps to change their behavior.

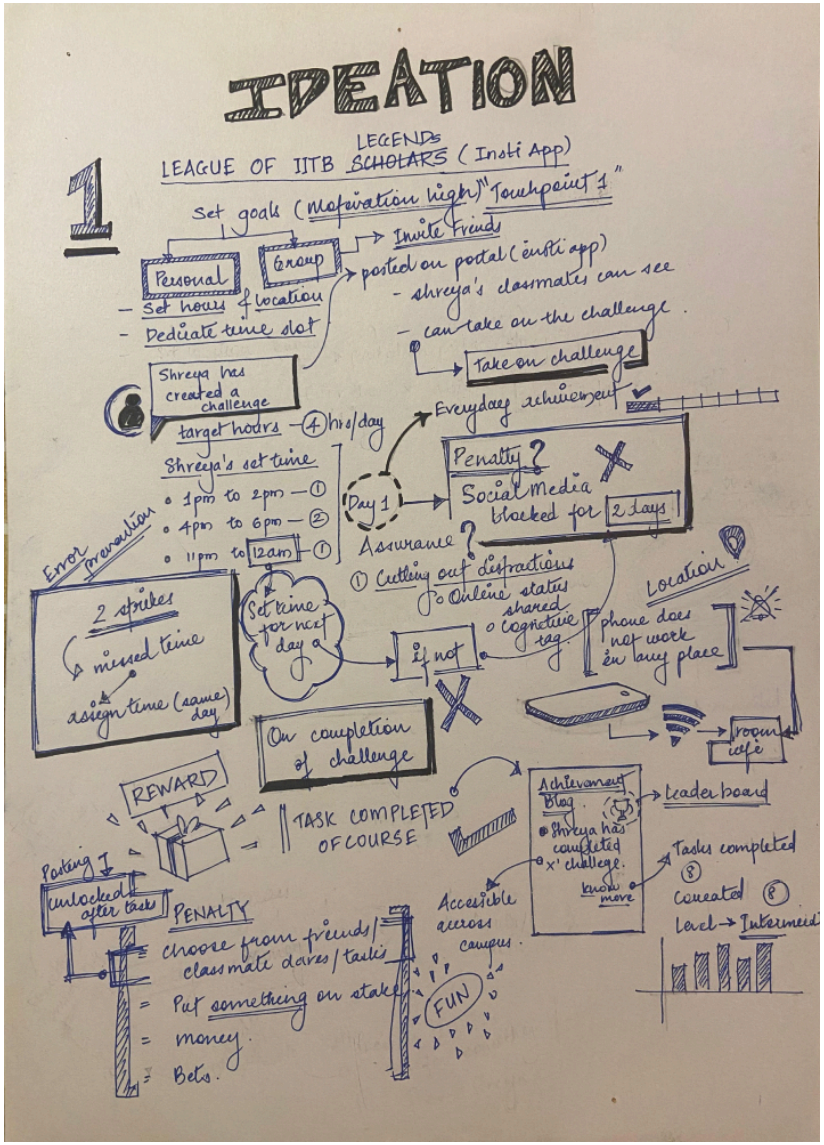
5. Maintenance: Individuals sustain the new behavior over time and work to prevent relapse.

6. Termination: The new behavior becomes a permanent part of the individual's lifestyle, and there is no risk of relapse.

Application: Understanding that students are at different readiness stages to adopt new habits, we designed interventions to support their progression through each stage effectively.

The project aims to address the pressing issue of time management among IIT Bombay students by combining innovative technology with established behavioral change models. By focusing on the specific needs and challenges faced by students, this project seeks to foster consistent working habits, improve academic performance, and enhance overall well-being. However, the project must navigate potential adoption barriers, technological constraints, and the need for sustained engagement to achieve its objectives fully.

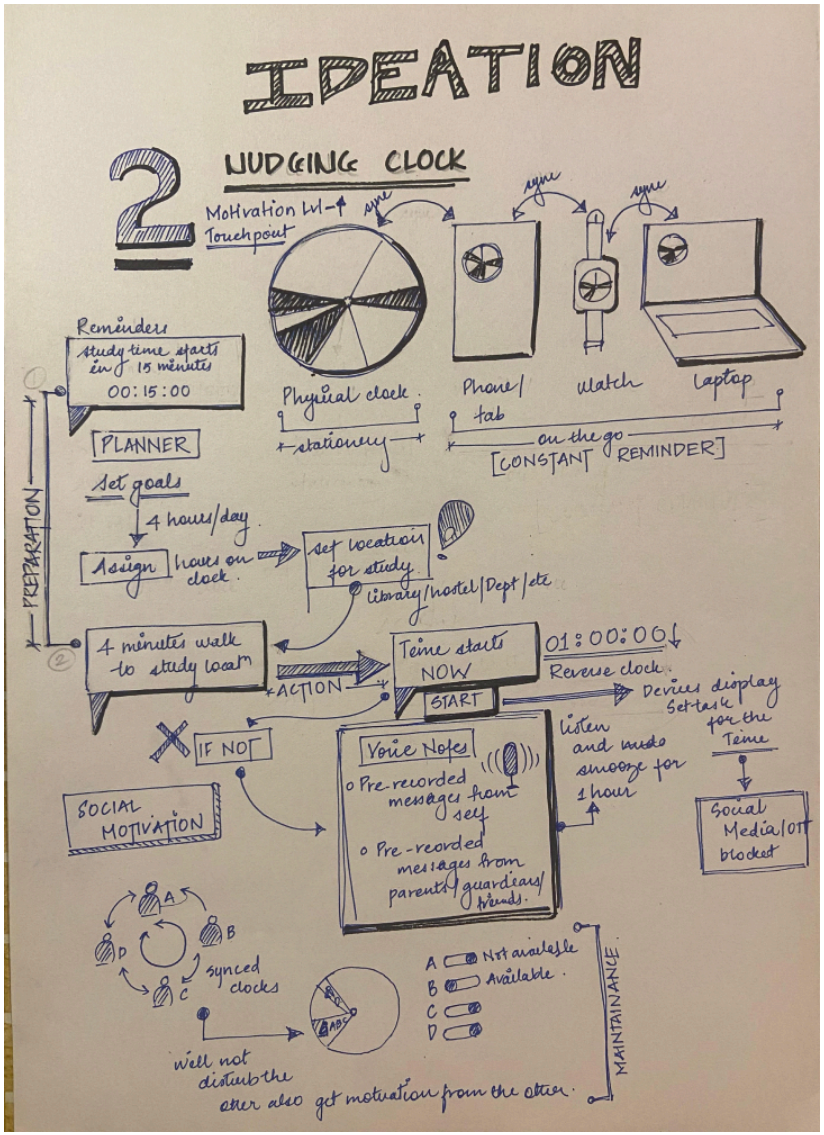
6 Ideation



Idea 1 League of IITB Legends

1. The idea was to create an engaging platform for students to create and collaborate such that they understand where they stand and what they need to do to reach their goals.
2. A platform for students to collaborate and work ahead based on their skills and penalties imposed on them to keep track of their daily activities.

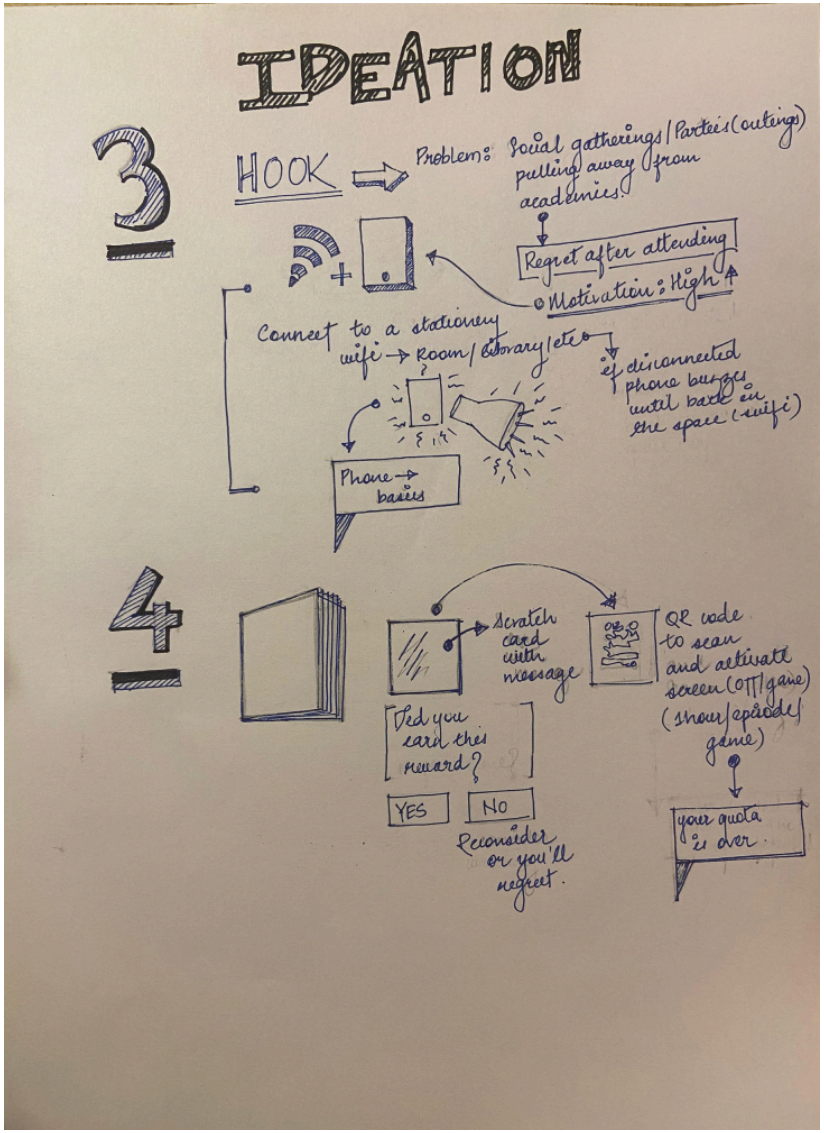
The idea is to create a platform that encourages students to take on challenges and earn rewards when these challenges are completed. They understand the position and progress of their classmates and work on touchpoints that they recognize to work on.



Idea 2 Nudging clock

1. A tangible product that includes a clock that displays the student's time of work and of their friends.
2. The device is to be placed in the hostel and it is also synced with the student's mobile phones, smartwatches, and other devices.
3. Students can set timers and arrange for joint learning sessions, voice notes from peers, parents, guardians, etc used to keep them from skippings or postponing time slots.
4. Availability of peers at a particular time of the day is also shared to limit distractions

The nudging clock is designed to target the preparation and action phase in the students behavioral change cycle.



Idea 3 Hook

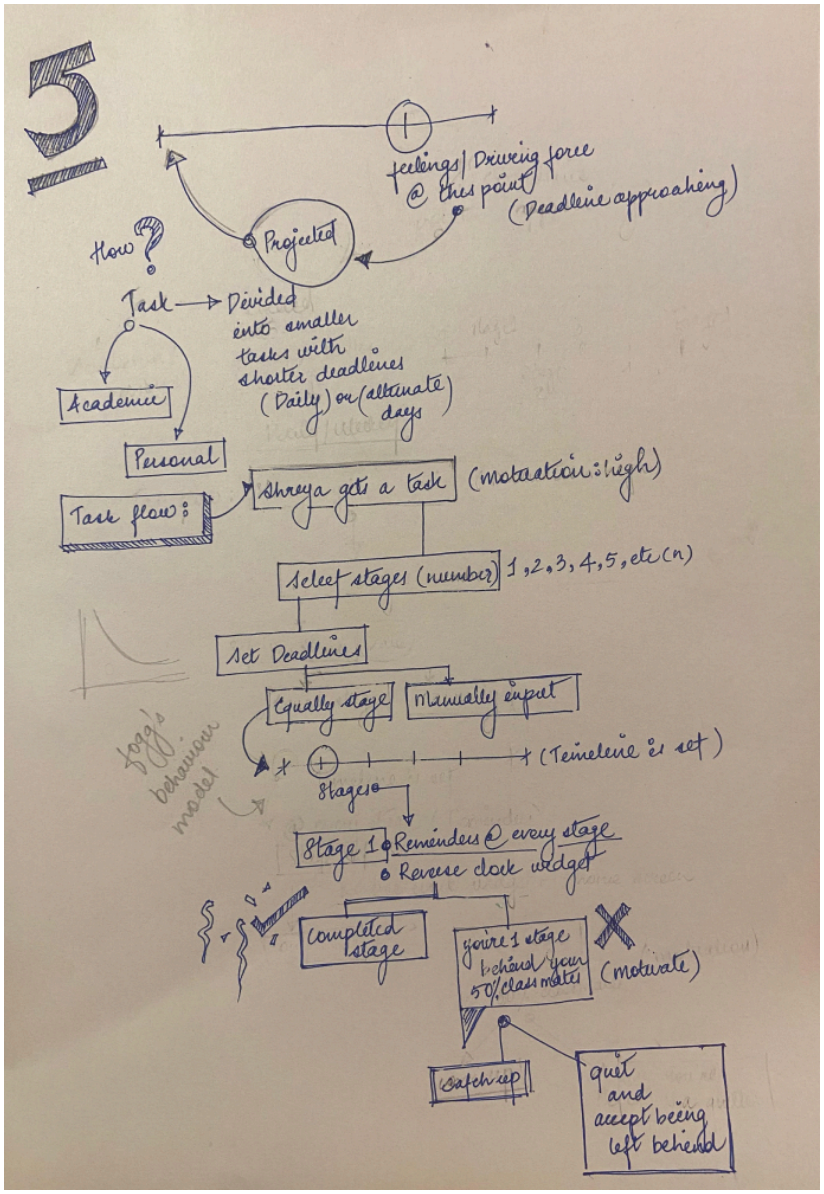
1. Specifically targeting the students group who spend a good amount of time in social gatherings at the cost of their academic schedule.
2. Student's devices can only connect to a stationary wifi and can only work in the set-specific wifi connection.

The nudging clock is designed to target the preparation and action phase in the students behavioral change cycle.

Idea 4 Tracker booklet

1. A booklet with QR codes that can have to be scanned inorder to watch OOT platforms.
2. Specific number of hours are to be earned, these can help students to keep track of their daily hours spent on OTT platforms.

The nudging clock is designed to target the preparation and action phase in the students behavioral change cycle.



Idea 5 Automated schedule generator

1. Addressing the issue of ineffective planning of daily tasks and schedules, this idea is to help students easily divide their daily tasks and dedicate specific time limits to a particular task.
2. Based on Fogg's behavioral model, this idea brings in ease of use for students to categoize their tasks into smaller tasks to help them consistently progressing towards the final deliverable.

With simple steps students can categorize and sort tasks for effective management of time.

7 Evaluation of ideas

The purpose of this evaluation was to gather feedback from IIT Bombay students on five proposed ideas for a time management application designed to help them improve their academic, personal, and social time management. The students were asked to evaluate each idea based on five criteria: fun, ease of use, need, frequency, and potential impact.

Participants:

Thirteen students from various departments at IIT Bombay participated in the evaluation process. The diverse representation aimed to capture a wide range of perspectives and preferences.

Evaluation Criteria:

1. Fun: How enjoyable the students found the idea.
2. Ease of Use: How user-friendly and intuitive the idea seemed.
3. Need: The perceived necessity and relevance of the idea to the student's lives.
4. Frequency: How often the students believed they would use the idea.
5. Potential Impact: The potential effectiveness of the idea in improving their time management skills.

Process:

Presentation of Ideas: Each of the five ideas was presented to the students with a brief explanation of its features and intended benefits.

Individual Evaluation: Students were provided with evaluation forms to rate each idea on a scale from 1 to 5 for each criterion (1 being the lowest and 5 being the highest).

Group Discussion: After individual evaluations, students participated in a group discussion to share their thoughts and elaborate on their ratings.

Data Collection: The ratings from the evaluation forms were collected and analyzed to determine the average score for each criterion across all ideas.

Link to Google sheet with evaluation record:
https://docs.google.com/spreadsheets/d/1SqGaE6aZ2qVkD7g9E4c5wmOhQRBzenZKkwhjohvBYEg/edit?usp=sharing

Idea 1 League of IITB Legends

Idea 1					
Participant	**Need**	**Ease of use**	**Fun**	**Frequency**	**Potential impact**
1	4	4	5	4	4
2	3	4	5	4	4
3	4	4	5	4	4
4	5	3	5	4	4
5	4	3	5	4	4
6	4	3	5	4	4
7	4	3	5	3	5
8	4	4	5	4	5
9	4	5	4	3	5
10	5	5	4	3	5
11	5	5	5	3	4
12	4	5	5	4	5
13	4	5	5	4	3
AVG:	4.153846154	4.076923077	4.846153846	3.692307692	4.307692308

Idea 2 Nudging clock

Idea 2					
Participant	**Need**	**Ease of use**	**Fun**	**Frequency**	**tential impa**
1	4	5	2	5	3
2	3	4	5	4	4
3	3	3	3	5	3
4	3	4	3	5	3
5	4	4	3	4	3
6	3	4	5	5	3
7	3	3	2	3	4
8	3	3	5	5	5
9	4	3	2	5	4
10	3	5	4	5	3
11	3	3	3	3	4
12	3	4	2	5	3
13	3	4	4	4	3
AVG:	3.230769231	3.769230769	3.307692308	4.461538462	3.461538462

Idea 3 Hook

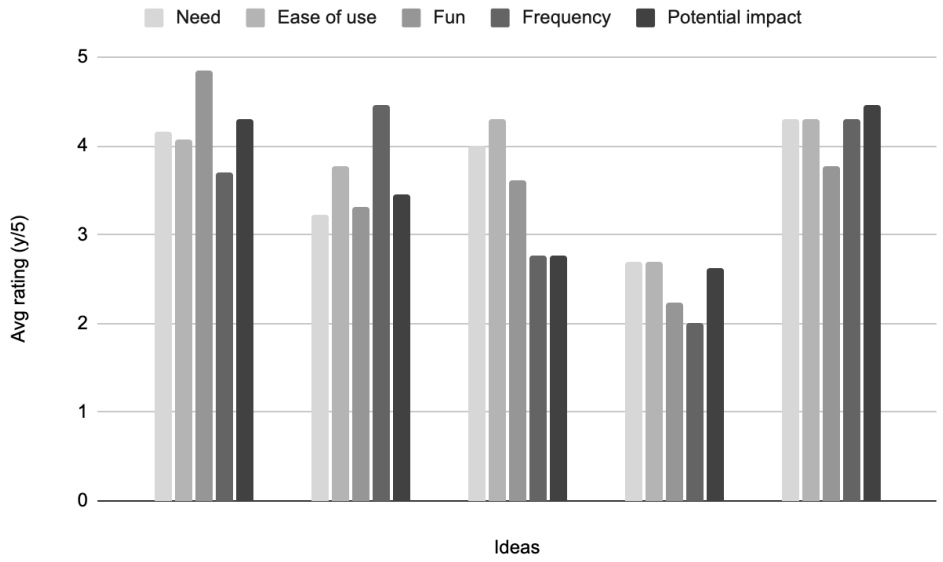
3					
Participant	**Need**	**Ease of use**	**Fun**	**Frequency**	**Potential impact**
1	3	4	3	3	4
2	3	4	3	4	3
3	4	4	5	3	3
4	4	4	3	4	3
5	4	4	5	3	2
6	5	3	3	2	3
7	4	4	5	2	2
8	4	4	3	3	2
9	5	5	4	2	3
10	5	5	4	3	3
11	5	5	3	3	3
12	3	5	3	2	2
13	3	5	3	2	3
AVG:	4	4.307692308	3.615384615	2.769230769	2.769230769

Idea 4 Tracker booklet

4					
Participant	**Need**	**Ease of use**	**Fun**	**Frequency**	**tential imp**
1	3	3	2	1	2
2	4	2	3	2	4
3	4	2	2	2	2
4	3	2	2	1	2
5	3	3	2	1	3
6	3	2	2	2	3
7	2	3	3	1	3
8	2	2	2	2	3
9	2	2	2	3	2
10	2	2	2	3	2
11	5	5	3	3	2
12	1	5	2	3	3
13	1	2	2	2	3
AVG:	2.692307692	2.692307692	2.230769231	2	2.615384615

Idea 5 Automated schedule generator

5					
Participant	**Need**	**Ease of use**	**Fun**	**Frequency**	**Potential impact**
1	4	4	3	4	5
2	4	4	4	5	5
3	5	4	4	5	5
4	5	4	3	5	5
5	5	5	3	5	3
6	4	5	4	4	4
7	4	4	5	3	5
8	4	4	5	5	5
9	4	5	3	4	4
10	4	4	3	5	3
11	4	5	4	3	4
12	4	5	3	3	5
13	5	3	5	5	5
AVG:	4.307692308	4.307692308	3.769230769	4.307692308	4.461538462



Conclusion:

The evaluation provided valuable insights into the preferences and priorities of IIT Bombay students regarding time management tools. Idea 1 League of IITB Legends and Idea 5 Automated schedule generator emerged as the most promising ideas, with high scores in need and potential impact.

However, each idea had its unique strengths and considerations, highlighting the importance of balancing fun, ease of use, and practical utility in the final application design. The feedback from this evaluation was used in the development of a tailored, effective time management solution that meets the diverse needs of IIT Bombay students.

8 Final Ideation

Concept Overview:

The final idea is a series of interventions which aims to guide students through the different stages of behavioral change, from precontemplation to termination, providing tailored support and interventions at each stage. The design leverages insights from both Fogg's Behavior Model and the Transtheoretical Model to create an engaging and effective tool for improving time management skills.

Stage-Specific Features:

1. Precontemplation to Contemplation:

   Posters and Promotions: Eye-catching posters and promotions are created to intrigue students and raise awareness about the importance of time management. These materials direct students to download the mobile application, encouraging them to move from precontemplation to contemplation.

   Goal: Increase awareness and interest in the application.

2. Contemplation to Preparation:

   Application Download and Onboarding: Students are encouraged to download the application. The onboarding process includes educational content on the benefits of effective time management and a guided setup to help students start managing their tasks and creating personalized schedules.

   Goal: Facilitate the transition from considering change to preparing for it by providing the necessary tools and information.

3. Preparation to Action:

   Timely Notifications and Resources: The application sends timely notifications and provides resources to prompt students to work according to their fixed schedules. This ensures that students are consistently reminded and supported in their efforts to follow their plans.

   Goal: Encourage students to start taking concrete actions towards their time management goals.

4. Action to Maintenance:

   Reward System: Students earn points for completing targeted tasks, which can be used to unlock various rewards such as claiming items from an inventory, placing money bets, or engaging in peer collaboration.

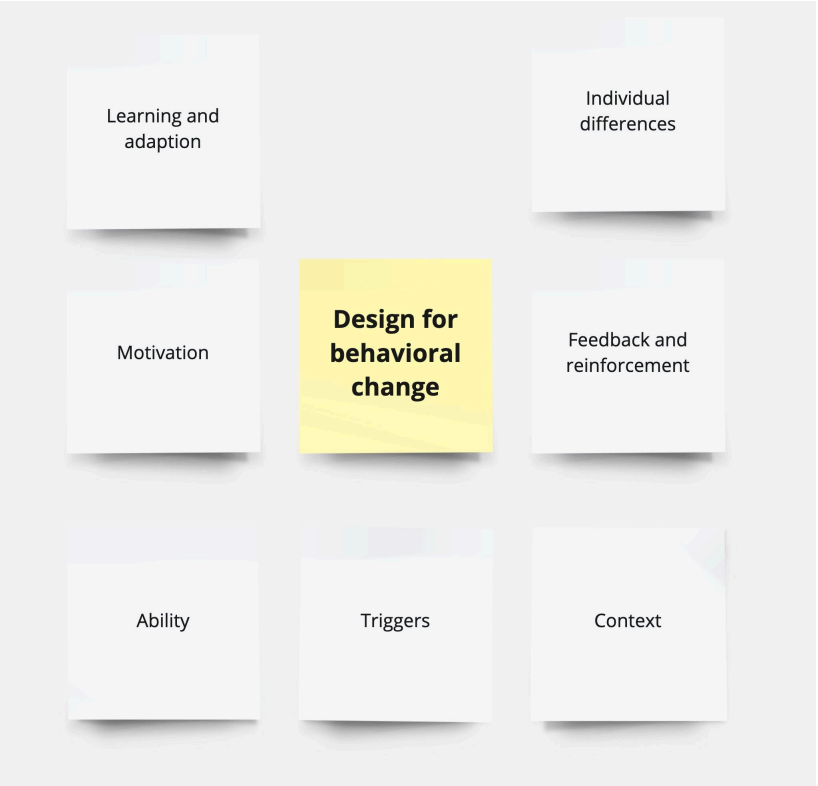
   Mentorship Sessions: If students struggle to complete tasks, they can opt for mentorship sessions with peers or other students who have successfully managed their time. These mentors offer guidance in exchange for extra points.

Goal: Support students in maintaining their new behaviors through motivation and peer support.

5. Maintenance to Termination:

   Long-Term Engagement Strategies: The application includes advanced goal-setting features, community support, and periodic challenges to help ensure that the new time management behaviors become permanent.

   Goal: Solidify the behavioral changes and make effective time management a permanent part of students' lives.

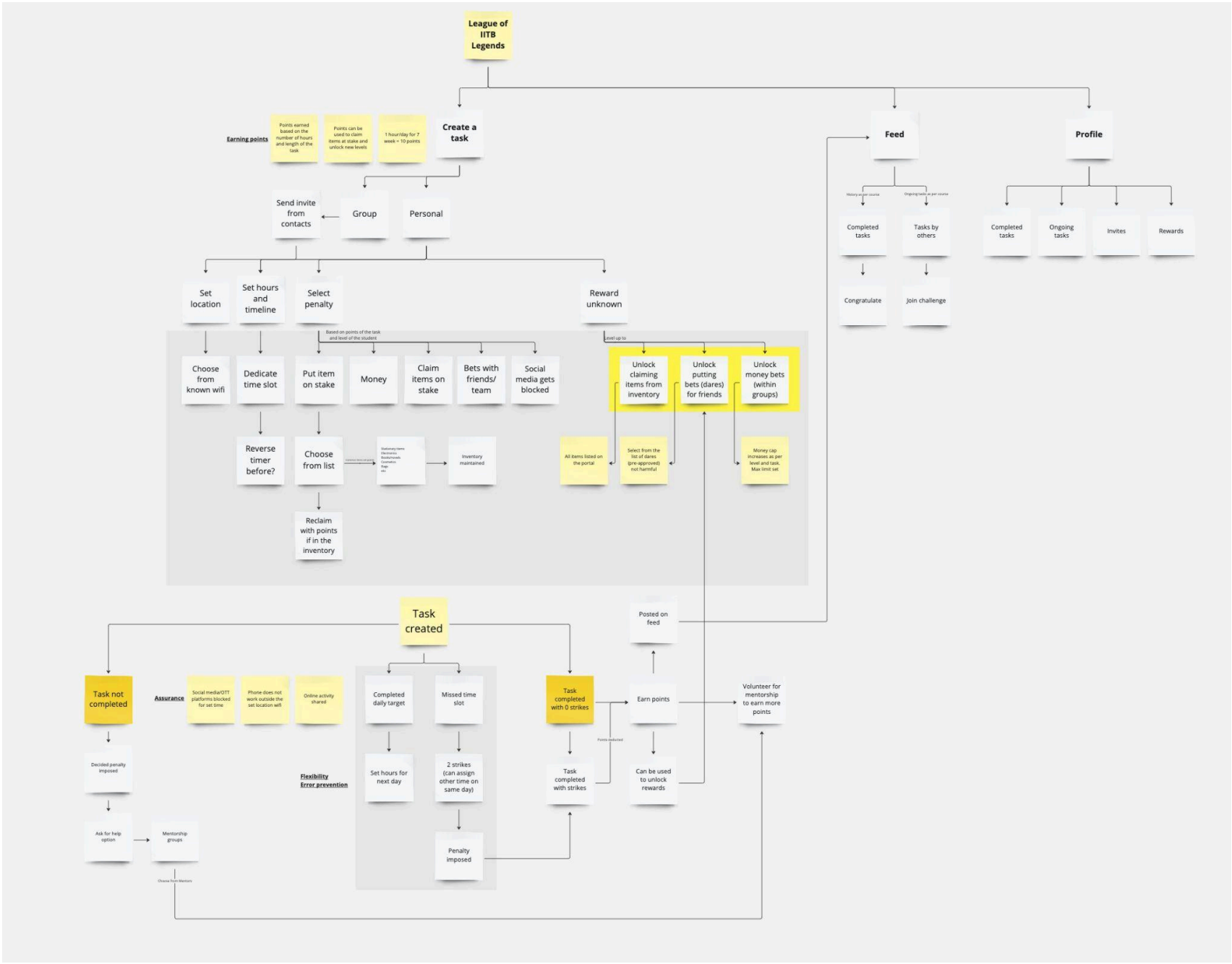


By integrating Fogg's Behavior Model and the Transtheoretical Model, the application provides tailored support at each stage, from initial awareness, ease of use, to long-term maintenance of new habits.

The combination of gamification, personalized planning, timely prompts, and a robust reward system aims to create an engaging and effective tool for improving students' time management skills and overall well-being.

Link to miro board:
https://miro.com/app/board/uXjVKZ7e5_0=/?share_link_id=290878596393

Brainstorming and establishing a structure of the idea



Touchpoints

1. Precontemplation to Contemplation

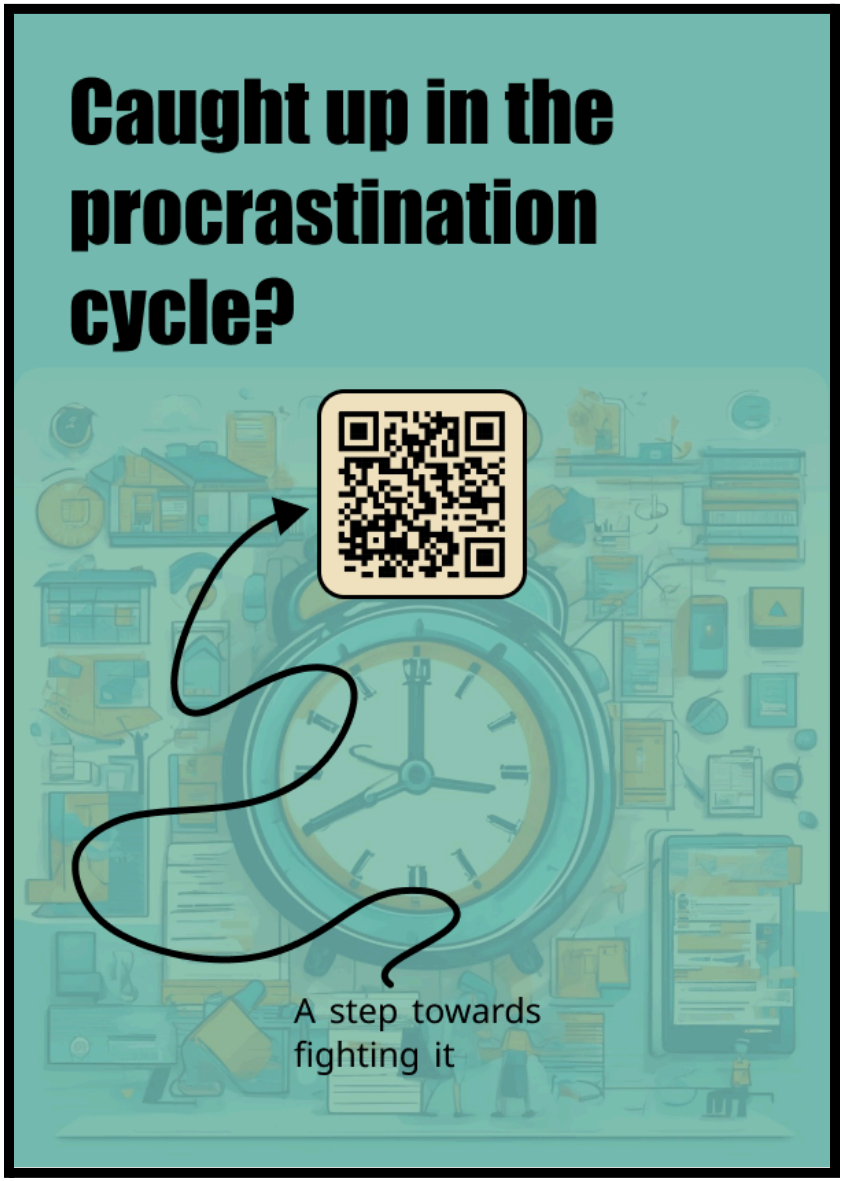
Purpose: To spread awareness and prompt students to take the first step towards better time management.

Implementation: Eye-catching posters with intriguing messages are placed around campus, each featuring a QR code that directs students to download the "League of IITB Legends" application.

Intervention: Poster Design with one liners to targeting diverse pain points of students to engage with them on a personal level.

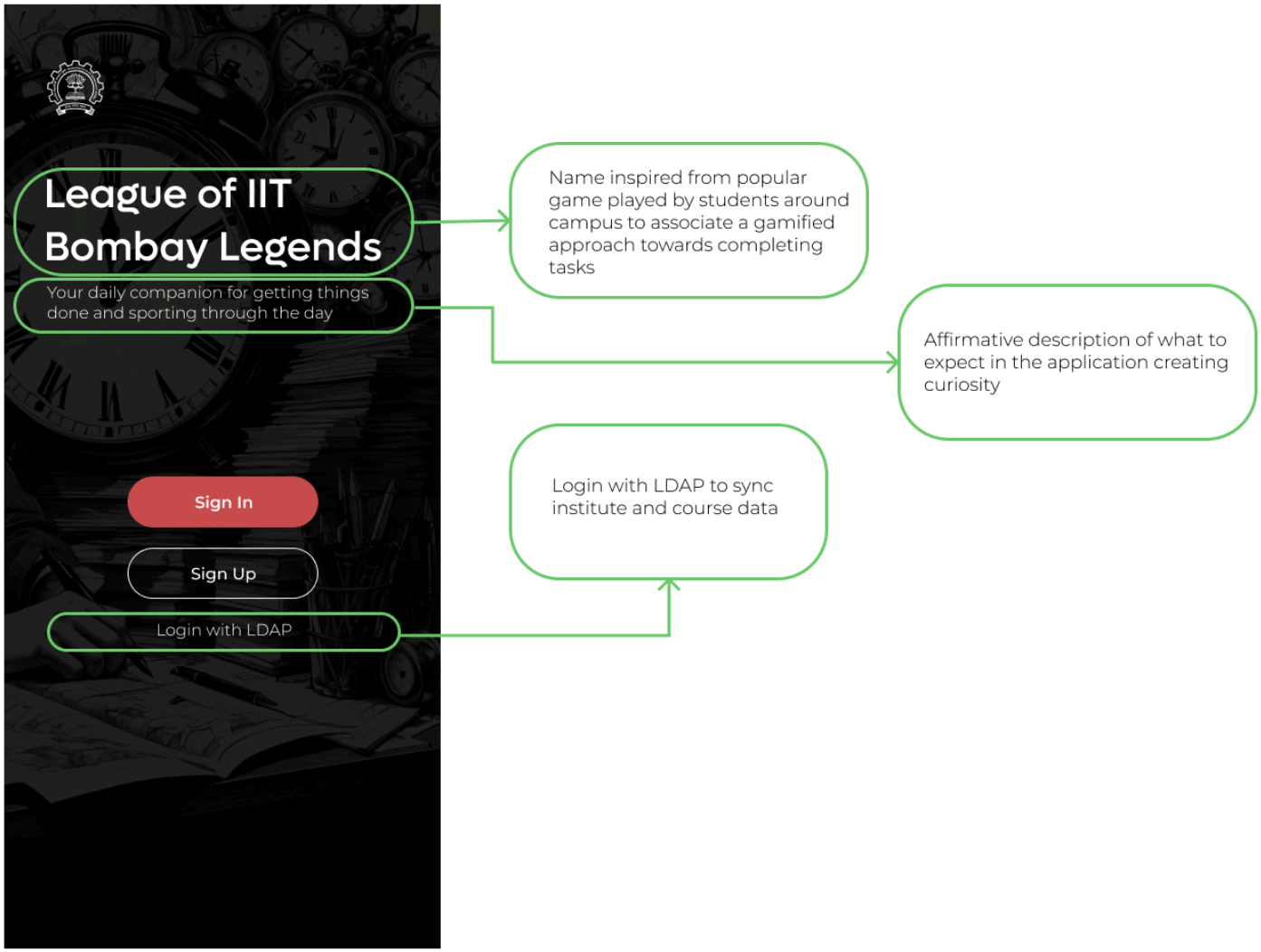
Design considerations:

1. To be placed in areas with maximum students traction to reach the target audience.
   Eg, Lecture hall corridors, canteens, hostel entrances, etc
2. To be designed such that it can be read or interacted with on the go.
3. To the point and relatable content.
4. Block color coding to stand out from the surface it is placed on.
5. Bold impactful text to for better readability and engagement.
6. Curvy arrows to direct the eyes to the call of action.
7. Background displaying the context of expected type of interaction.
8. Easy QR code download for hassle free interaction.

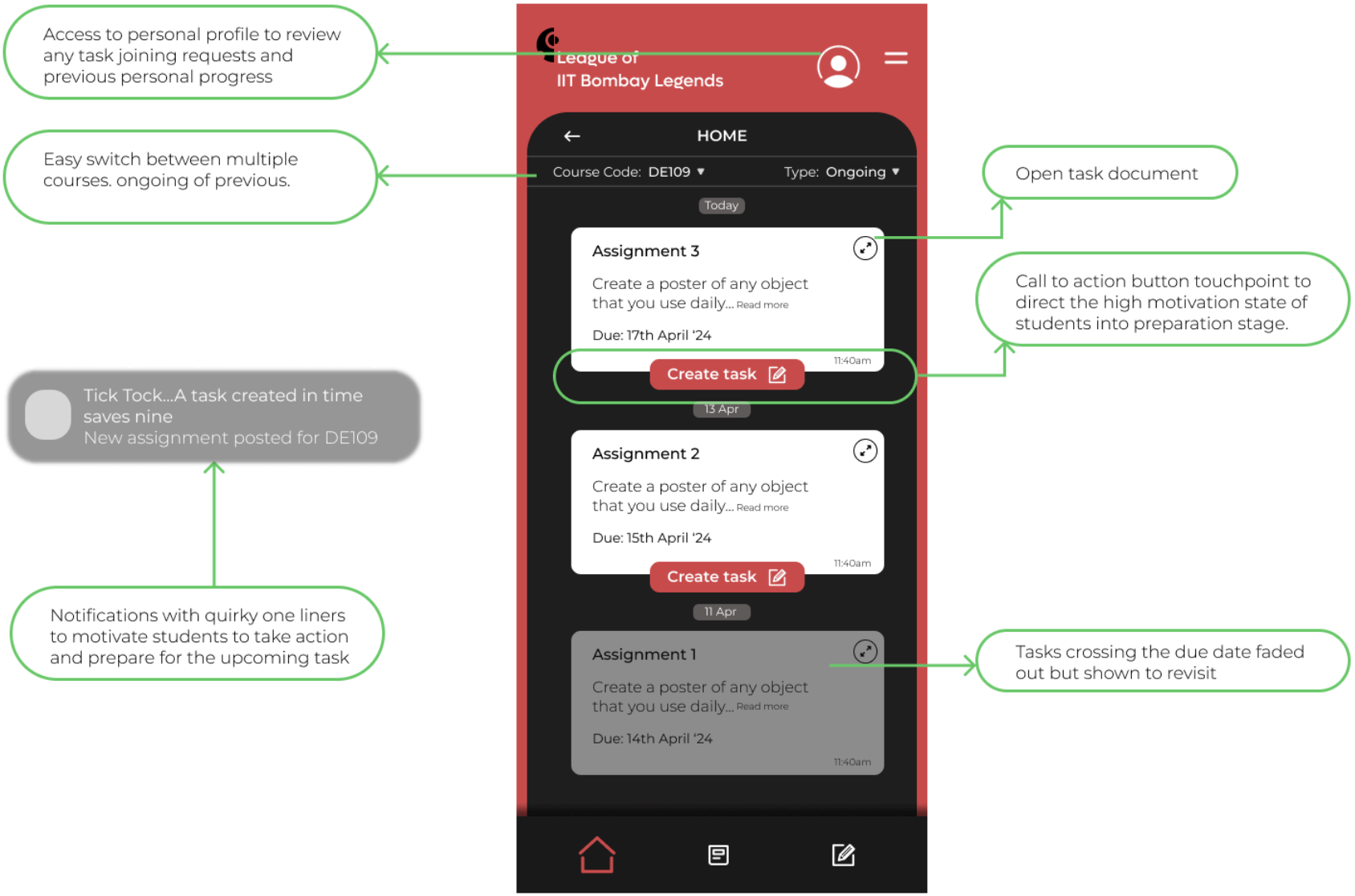


2. Contemplation to Preparation

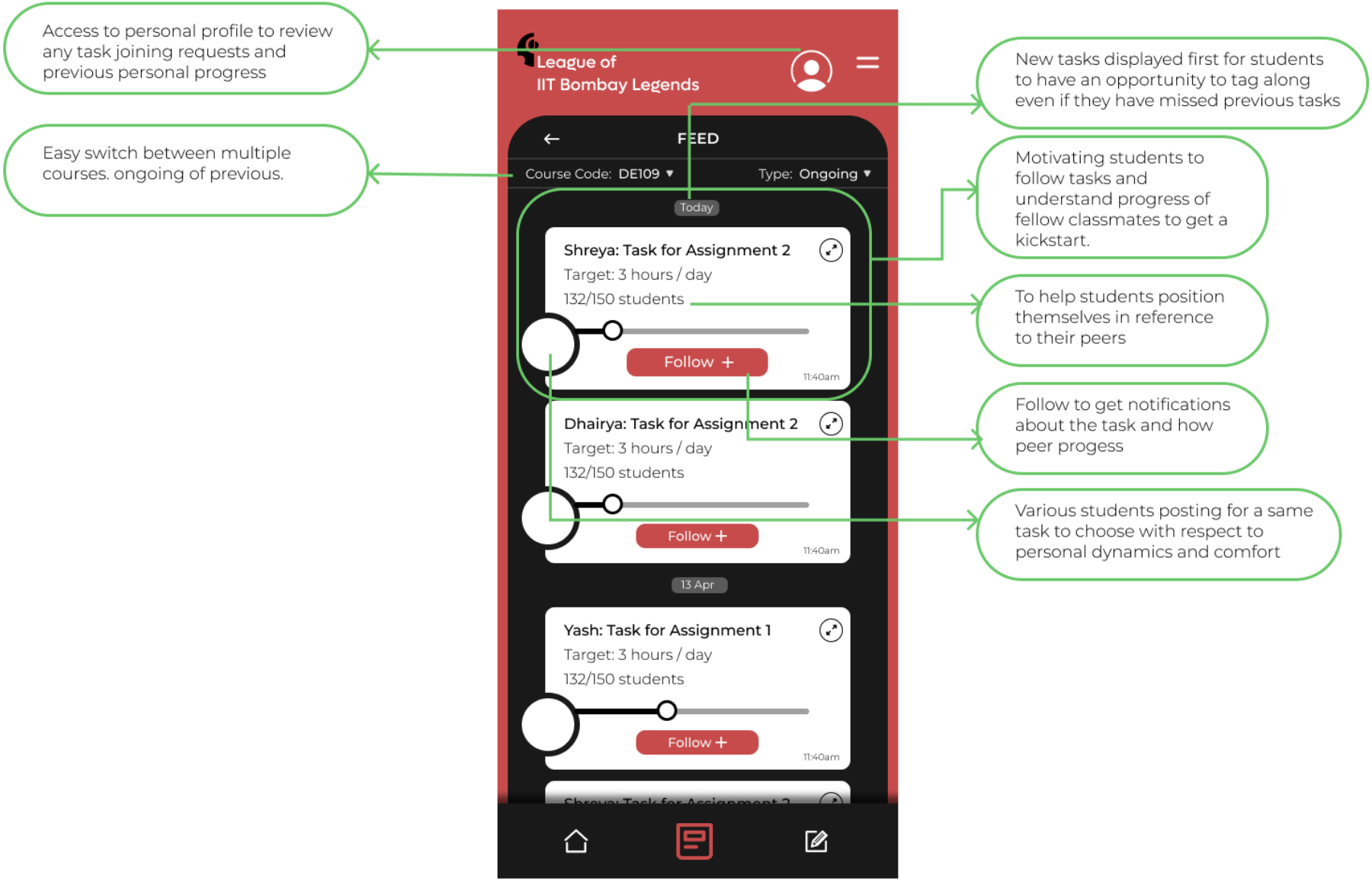
Simple and fun onboarding screen for quick call to action.



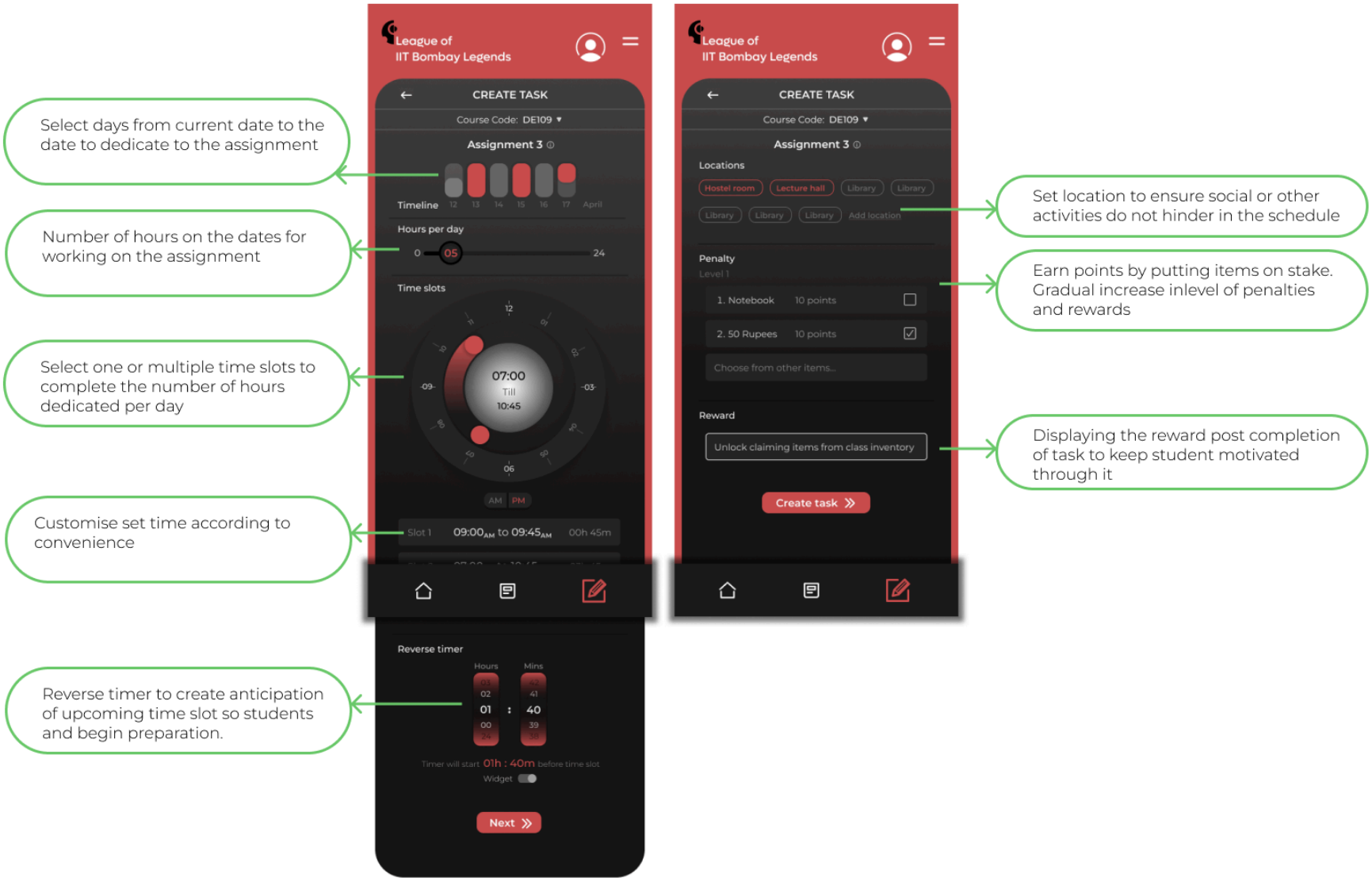
Home screen


Access to personal profile to review any task joining requests and previous personal progress
Easy switch between multiple courses. ongoing of previous.
Tick Tock...A task created in time saves nine
New assignment posted for DE109
Notifications with quirky one liners to motivate students to take action and prepare for the upcoming task
League of
IIT Bombay Legends
HOME
Course Code: DE109
Type: Ongoing
Today
Assignment 3
Create a poster of any object that you use daily... Read more
Due: 17th April '24
11:40am
Create task
13 Apr
Assignment 2
Create a poster of any object that you use daily... Read more
Due: 15th April '24
11:40am
Create task
11 Apr
Assignment 1
Create a poster of any object that you use daily... Read more
Due: 14th April '24
11:40am
Open task document
Call to action button touchpoint to direct the high motivation state of students into preparation stage.
Tasks crossing the due date faded out but shown to revisit

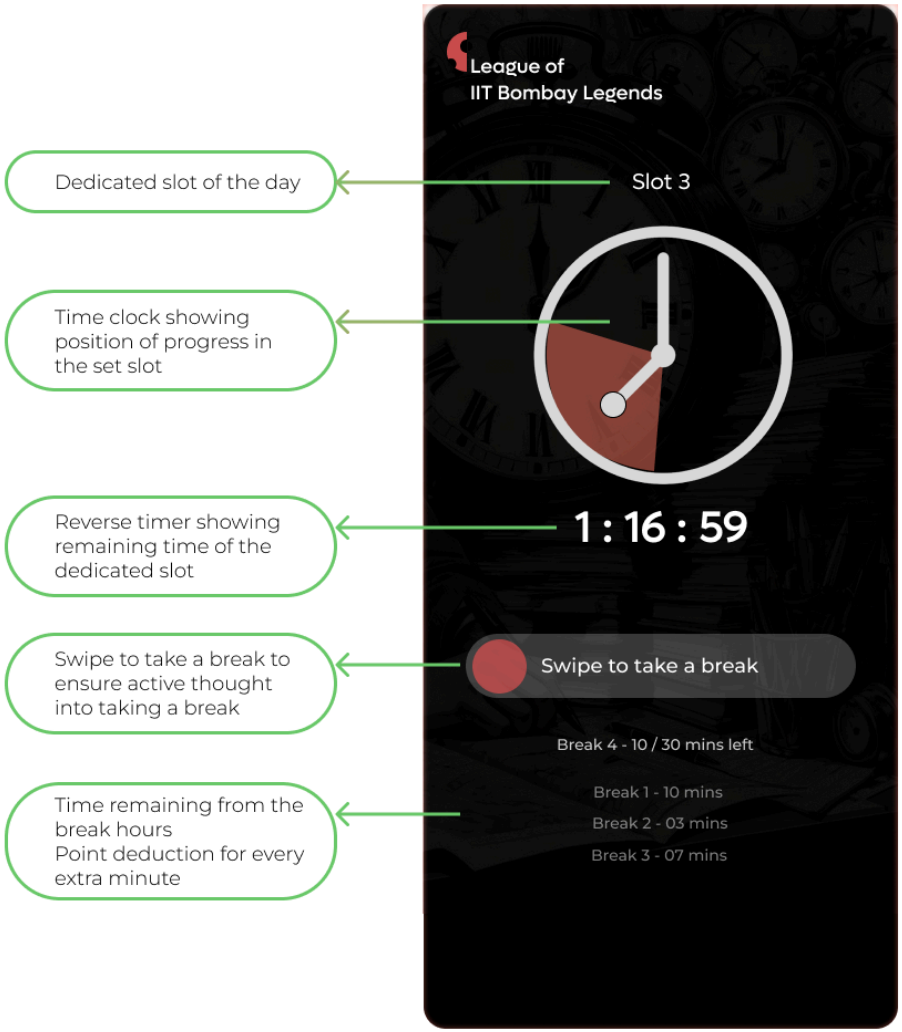
Feed Screen to see ongoing tasks, assignments and follow peer progress for motivation



3. Preparation to Action



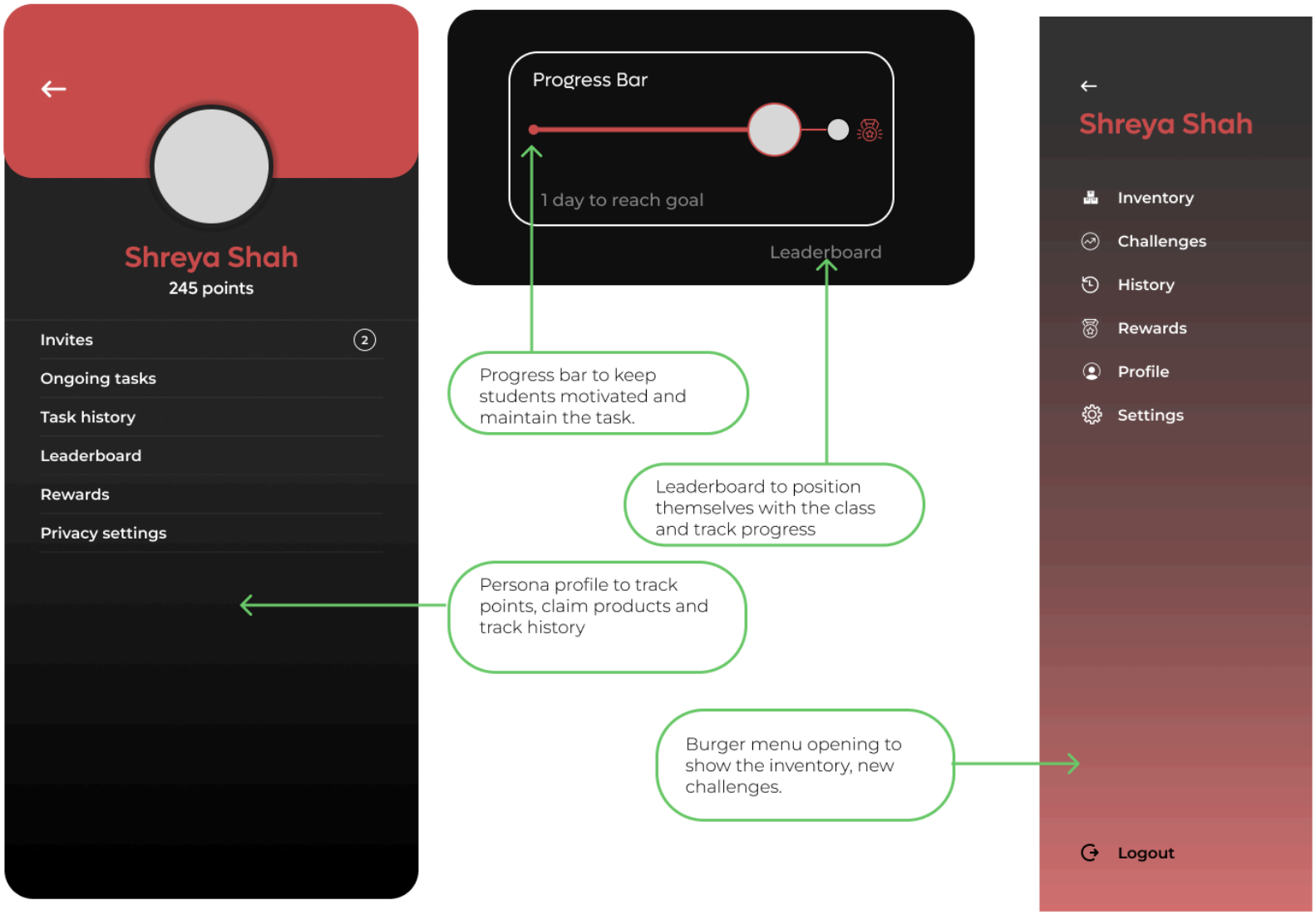
4. Action to Maintenance



Other salient features:

1. Widget displaying the break timer on home screen during active breaks
2. When collaborating with peers on a particular task timer displays their position and option to take synced breaks.
3. Widget with button to end the break on home screen.

5. Maintenance to termination



9 Testing interventions at various stages

Stage 1
Precontemplation to contemplation

To test the first intervention—transitioning students from the pre-contemplation to contemplation stage—posters were strategically placed around the IIT Bombay campus. The objective was to raise awareness about the "League of IITB Legends" application and prompt students to take the initial step towards improving their time management skills.

Methodology:

1. Location Selection: Posters were placed in high-traffic areas such as lecture halls and corridors where student footfall is approximately 100 individuals per day.
2. Duration: The testing was conducted over a period of 3 days.
3. Design: The posters featured intriguing message designed to capture students' attention and included a QR code directing them to download the application.

Testing Technique:

Fake Door Testing: This method was employed to gauge initial interest and engagement. The effectiveness of the posters was measured by counting the number of QR code scans.
Data Collection: QR code scans were monitored and recorded over the 3-day period.

Results:

Footfall: Based on the estimated range, the foot traffic in the poster locations was approximately 300 students over the 3 days.
QR Scans: A total of 73 scans were recorded from the QR codes during the testing period.

Analysis:

Engagement Rate: Considering the foot traffic, the engagement rate (number of QR scans) was approximately 24.3%.
Implications: The results indicate a high level of initial interest and engagement, suggesting that the posters successfully captured the attention of a significant portion of the student population.

Conclusion:

The pre-contemplation to contemplation stage intervention demonstrated strong results, with 73 students engaging with the QR code. This high level of initial interest indicates that the posters were effective in raising awareness and

prompting action. These results are promising and suggest that with further refinement, the messaging and placement strategy can convert even more students from contemplation to preparation and action stages. Future steps will involve analyzing the follow-through of these engaged students and enhancing the intervention for sustained engagement.

Stage 2

Usability testing of the tool “League of IITB Legends” amongst students of IIT Bombay with diverse backgrounds.

To evaluate the usability and potential impact of the "League of IITB Legends" application, qualitative usability testing was conducted among students of IIT Bombay. This involved in-depth interviews and a rating system to gather their feedback on various criteria including need, likely use, frequency of use, potential impact, fun, ease of use, and relatability.

Participants:

17 students from various departments were randomly selected to participate in the usability testing.

Criteria Measured:

1. Need: The necessity of such an application for their academic and personal lives.
2. Likely to Use: The likelihood of students using the application regularly.
3. Frequency of Use: How often they would use the application.
4. Potential Impact: The expected positive outcomes from using the application.
5. Fun: The enjoyment derived from using the application.
6. Ease of Use: The simplicity and user-friendliness of the application.
7. Relatability: How much the application resonates with their specific needs and challenges.

Interview Questions and Rating Scale:

Participants were asked to rate each criterion on a scale of 1 to 5, where 1 is the lowest and 5 is the highest.

Need:

Q: "Do you feel a need for a time management application tailored for IIT Bombay students? Why or why not?"
Rating: 1 (No need) to 5 (High need)

Likely to Use:

Q: "How likely are you to use the 'League of IITB Legends' application regularly?"
Rating: 1 (Very unlikely) to 5 (Very likely)

Frequency of Use:

Q: "How often do you think you would use this application?"
Rating: 1 (Rarely) to 5 (Daily)

Potential Impact:

Q:"What impact do you think this application could have on your academic and personal life?"
Rating: 1 (No impact) to 5 (High impact)

Fun:
Q: "Did you find the application fun to use? What elements did you enjoy the most?"
Rating: 1 (Not fun) to 5 (Very fun)

Ease of Use:
Q:"How easy was it to navigate and use the application?"
Rating: 1 (Very difficult) to 5 (Very easy)

Relatability:
"How well does this application address your specific needs and challenges as an IIT Bombay student?"
Rating: 1 (Not relatable) to 5 (Very relatable)

Average ratings:

Need: 4.1
Likely to use: 3.9
Frequecy of use: 3.6
Potential Impact: 4.2
Fun: 3.3
Ease of use: 4.0
Relatability: 4.0

Link to Google sheet:
https://docs.google.com/spreadsheets/d/1D7GaKP8mo230bvOnSNeFwr_lZp7iYtidFMOy48ESjlY/edit?usp=sharing

Rating Data of 17 participants

Participant	Need	Likely to Use	Frequency of Use	Potential Impact	Fun	Ease of Use	Relatability
1	5	5	5	5	4	5	5
2	4	3	3	4	3	3	3
3	4	3	3	4	3	4	4
4	3	2	2	2	2	3	2
5	4	4	3	4	3	4	4
6	5	5	5	5	4	5	5
7	4	4	4	5	3	4	4
8	3	3	3	3	3	4	3
9	4	4	3	4	4	5	4
10	5	4	4	5	4	4	5
11	4	4	4	4	3	4	4
12	5	5	5	5	4	5	5
13	4	3	3	3	3	4	3
14	4	4	4	4	3	4	4
15	3	3	3	3	2	3	3
16	5	5	5	5	4	5	5
17	4	4	4	4	3	4	4

Conclusions from data:

1. Moderate to High Need: There is a recognized need for a time management application among IIT Bombay students, though not universal.
2. Moderate Likelihood to Use: While many students are likely to use the application, some remain unsure about its long-term utility.
3. Occasional to Daily Use: Usage frequency varied, with some students planning to use it daily and others only occasionally.
4. Positive Impact: Most students believe the application could positively affect their academic performance and stress levels.
5. Mixed Fun Factor: The gamification elements received mixed reviews, indicating room for enhancing the engagement aspect.
6. User-Friendly: Generally, the application was found to be user-friendly, although a few features could be more intuitive.
7. High Relatability: The application resonates well with the students' specific needs, but further customization could enhance its effectiveness.

Overall, the feedback indicates that "League of IITB Legends" has strong potential but also highlights areas for improvement. Enhancing the fun and engagement aspects, simplifying complex features, and further tailoring the application to individual needs will be crucial for broader adoption and sustained usage across students of IIT Bombay.

10 Discussion:

The discussions around the application encompass various aspects including its perceived need, likelihood of use, frequency of use, potential impact, fun factor, ease of use, and relatability to students' needs.

Need and Likelihood of Use:

The majority of students expressed a high need for a time management application tailored to the unique challenges faced at IIT Bombay. They highlighted the complexity of managing academic responsibilities, personal commitments, and social engagements, indicating a clear demand for a comprehensive solution like "League of IITB Legends."
While many students showed enthusiasm and expressed a high likelihood of using the application regularly, there were also some reservations and uncertainties among others.

Frequency of Use and Potential Impact:

Students' anticipated frequency of use varied, with some planning to utilize the application daily for task management and deadline tracking, while others envisioned usage based on specific needs and tasks.
There was a general agreement among students regarding the potential impact of the application on their academic performance, stress levels, and overall organization. Positive expectations were linked to the application's ability to enhance productivity, reduce procrastination, and improve time management skills, ultimately leading to better outcomes in their academic endeavors.

Fun Factor and Ease of Use:

Feedback regarding the fun factor of the application was mixed, with some students appreciating the gamification elements and rewards system, while others suggested room for improvement in terms of engagement and variety.
There were instances where certain features were perceived as less intuitive or in need of refinement, indicating areas for enhancement to ensure a seamless user experience.

Relatability to Students' Needs:

The application's relatability to students' specific needs and challenges emerged as a crucial consideration. While many students felt that the application addressed their requirements effectively, others suggested opportunities for further customization and personalization to better align with individual preferences and workflows.
Tailoring the application to accommodate diverse user preferences and academic disciplines could enhance its relatability and usability, fostering greater user engagement and satisfaction.

Conclusion:
The discussions surrounding the "League of IITB Legends" application stress on its potential as a valuable tool for addressing the time management challenges faced by students at IIT Bombay.

11 Future scope

1. Design Considerations:
   Enhanced Gamification: Incorporate more engaging and diverse gamification elements. This could include customizable avatars, leaderboards, and competitive challenges.

   Personalization Features: Introduce features that allow users to tailor the application to their individual preferences and workflows, e.g customizable task categories, priority levels, and notification settings.

   Integration with Existing Tools: Explore integration opportunities with popular productivity tools and platforms used by students, such as Google Calendar, Microsoft Teams, and academic course management systems (moodle)

2. Insights from Testing:
   Iterative User Feedback: Continue testing and surveys to identify pain points, usability issues, and feature requests. Incorporate user feedback into ongoing development cycles for continuous improvement and alignment with user needs.

   Longitudinal Studies: Conduct longitudinal studies to assess the long-term impact of the application on students' time management habits, academic performance, and overall well-being. Track user engagement metrics and behavioral changes over an extended period to evaluate effectiveness and identify areas for optimization.

3. Discussions Insights:
   Collaborative Features: Explore the integration of collaborative features that facilitate peer support, accountability, and knowledge sharing among students. This could include group challenges, study groups, and peer mentorship programs within the application.

   Wellness Integration: Integrate wellness and self-care features into the application to promote holistic well-being among students. Incorporate features such as mindfulness exercises, stress management tips, and physical activity reminders to support students' mental and physical health.

   Accessibility Considerations: Ensure that the application is accessible to all students, including those with disabilities or diverse learning needs.

12 References and links

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