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**SECP1513 TECHNOLOGY AND INFORMATION SYSTEM  
SECTION 07**

**DESIGN THINKING REPORT**

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**GROUP 5 : CANDY CANE**

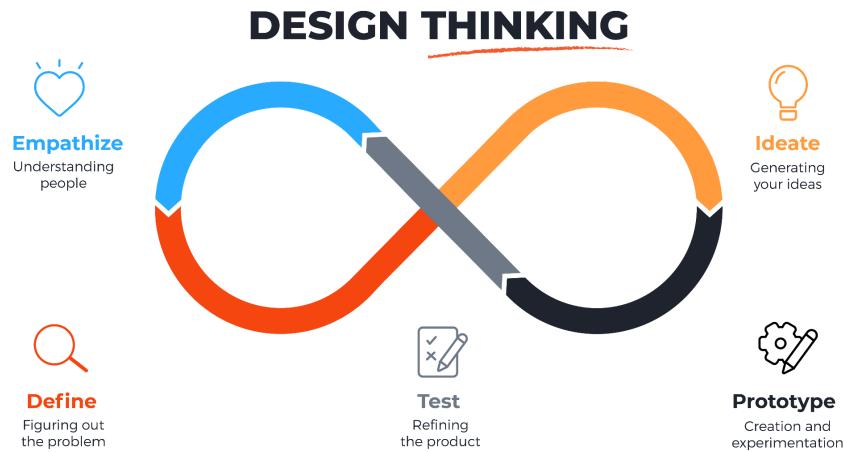
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## INTRODUCTION



In the ever-changing world of technology, design thinking has become increasingly important in encouraging innovation and solving complex problems. Empathy, ideation, prototyping, and testing are all hallmarks of design thinking, a human-centered approach to problem solving. This process prioritizes the end-user experience while also encouraging iterative solutions that adapt to changing needs.

In Database and Data Analytics, design thinking offers a new way to address challenges and enhance decision-making with data. This chapter explores how it transforms managing and extracting value from data.

Despite potential benefits, the Database and Data Analytics chapter faces challenges. Traditional data methods may struggle in today's dynamic data-driven settings. The divide between tech experts and end-users often results in data solutions not meeting business needs, emphasizing the need for a user-centered approach.

This report delves into new possibilities for efficiency, user satisfaction, and impactful decision-making at the intersection of design thinking and Database and Data Analytics.

## **DETAIL STEP**

On January 14, 2024, we were tasked with identifying problems in database and data analytics. This leads to the creation of eduTrack. Designed for simplicity, Simplified for ease, eduTrack offers goal setting and personalized suggestions, addressing complexities in database studies. Our goal is to improve the learning experience by making educational progress tracking more accessible and effective for students facing challenges in Database and Data Analytics.

### Empathize:

Empathy plays a pivotal role in designing a solution that truly addresses the needs and challenges of users. For eduTrack, our empathetic approach involved posing essential questions to students to understand their struggles better. Our approach targets students that are having difficulties with keeping up with education. One such question was, "Do you find it challenging to keep track of your academic progress?" This question aimed to delve into the heart of the problem, understanding the daily difficulties faced by students. The composite character, Nurlisa, emerged from our empathetic understanding. She represents a first-year student overwhelmed by the complexities of tracking grades. EduTrack is designed with students like Nurlisa in mind, aiming to alleviate their concerns and provide a user-friendly solution to streamline their academic journey.



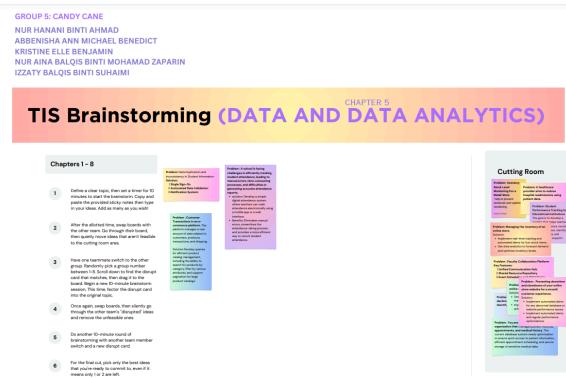
## Define:

In the define phase, we are explaining the problem by analyzing user difficulties, identifying patterns, and crafting a clear problem statement for the team to address. Based on the empathize phase, we can conclude that students, like Nurlisa, face difficulty tracking academic progress with existing systems. The identified problem is to develop a user-friendly solution within EduTrack that addresses this common struggle. Our goal is to streamline grade management, alleviating concerns for students and enhancing their overall educational experience.

Our goal is to create an academic hub for students, simplifying coursework management. The solution will promote seamless communication and collaboration among students, lecturers, and parents for academic success.

## Ideate:

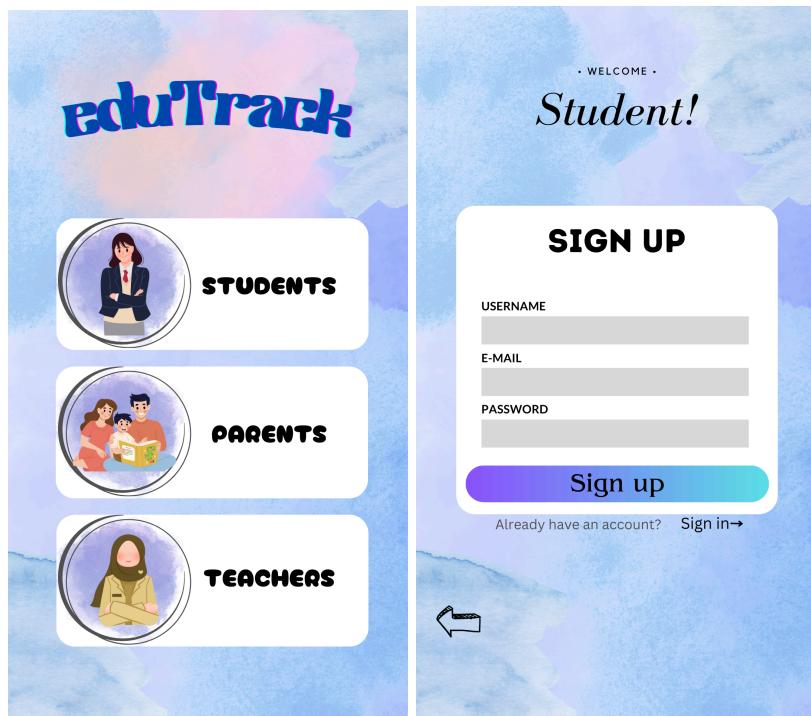
In the ideate phase, our team engages in a dynamic brainstorming process to generate creative solutions for the problem. Our goal is to come up with creative features for eduTrack that make it easy for students to track their academic progress. Our focus is on creating a comprehensive academic hub with streamlined grade management. The process of this phase involves brainstorming with everyone in the group and shortlisting the best solutions for the problems, and discarding the rest. Thus allowing us to produce a high-quality prototype for our users.



*Above is the evidence for brainstorming session with the group members*

## Prototype:

Creating a prototype is a critical step in translating ideas into a good solution. For eduTrack, we developed wireframes and visual representations of the student interface. This would show a layout of a web page that demonstrates what interface elements will exist on key pages. These prototypes were not fixed, but were continuously improved based on usability testing and user feedback. We aimed to design a simple and user-friendly student dashboard for eduTrack. Through prototyping, we continuously refined the interface to meet the practical needs and preferences of our users.



*The visualization of the app*

## Test:

Testing eduTrack with real users is the final step in the design thinking process. This includes gathering feedback on features like goal setting and personalized suggestions. The adjustments made during this phase are critical to improving the user experience. EduTrack's dynamic testing incorporates user feedback, ensuring the app meets expectations and improves the academic journey.

## **DETAILED DESCRIPTION (PROBLEM, SOLUTION AND TEAM WORKING)**

### Problem:

In regular schools or universities, it's often tough for students, lecturers, and parents to keep things organized when it comes to keeping track of grades and academic progress. Students can find it challenging to manage their assignments and grades, lecturers may struggle to understand how each student is doing, and parents want to be in the loop but don't always have real-time insights. We need a solution that makes it easier for everyone involved, allowing students to stay on top of their work, lecturers to understand their students better, and parents to support their child's education more effectively.

### Solution:

Make an app for a student's educational progress tracker named ***eduTrack***. This app involved using databases related to our given Chapter which is Database and Data Analytics such as Relational Databases. This app would track academic progress, set goals and receive personalized suggestions to improve students' knowledge.

### Team Working:

Upon recognizing the challenges university students encounter in effectively monitoring their academic progress, our team convened to generate tailored solutions. We envisioned a mobile application exclusively designed for this problem under the name *EduTrack*. The proposed solution centers on the development of a comprehensive educational progress tracker app for university students, incorporating features to cater to diverse learning styles and academic needs.

EduTrack is a centralized platform for university students, offering progress tracking, goal-setting, and personalized suggestions. Using AI tools, the app recommends activities to enhance subject knowledge. It includes features like real-time collaboration, a resource library, and personalized recommendations, providing a holistic solution for streamlined progress tracking and an enriched university learning experience.

## DESIGN THINKING ASSESSMENT POINT

If we develop EduTrack without first discussing and evaluating our ideas, we risk making a less effective decision or app. Assessment points are essential to prevent everyone just agreeing, especially in teams. This can ensure a more optimal outcome. For EduTrack, we did it in between discussions. It ensures we create something that genuinely tackles students' challenges in managing university grades, keeping us on track.

These are some of the assessment points we value:

Empathize	Since our target for this design thinking project primarily is for university students, we have interviewed some university students from University Technology Malaysia (UTM) about the problem they face with keeping up with the education progress. We collected feedback on the ease of using user profiles and gathered insights on the struggles students face.
Define	We aim to crystallize the identified problems and needs by evaluating the effectiveness of eduTrack features through user feedback. We also assessed the clarity and usefulness of the Goal Setting and Progress Monitoring tool. This helps students can set goals, like aiming for a certain GPA or improving in a specific subject. The app helps them see how they're doing and even suggests ways to reach those goals.
Ideate	During the ideate phase, brainstorming innovative solutions is a necessary step for us to come up with all possible solutions. So we start by reviewing the recommendations generated by the learning resources database for effectiveness and the best outcome. With this approach, we have decided to feature a messaging system as well in this app for communication needs.
Prototype	Creating a prototype is crucial in translating ideas into tangible form. Thus we conduct usability testing on the Dashboard feature to gauge lecturer satisfaction. The Dashboard shows the class's performance, spots tricky topics, and suggests ways to teach better based on past data. Making teaching a bit smoother. We collected feedback on the Attendance Tracking features impact on student performance.

Test	In the final process of the design thinking process, we tested eduTrack with real users, gathering feedback on features like goal setting and personalized suggestions. This phase not only addresses the initial problem but also meets users expectations, effectively enhancing the academic journey.
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## **DESIGN THINKING EVIDENCE**

### **The sample work by students working to solve the design challenge:**

In addressing the challenge of simplifying students' organization of school-related tasks, the student team embarked on an innovative journey, creating the eduTrack app. This initiative was driven by the recognition of students' need for a straightforward solution to manage their academic responsibilities efficiently.

### **Record for Each Phase:**

#### First phase:

The exploration phase involved an in-depth analysis of the challenges faced by students. Interviews and discussions were conducted with students, lecturers, and parents to gain comprehensive insights into the difficulties encountered in managing academic responsibilities. This phase aimed to understand the user's perspective and set the foundation for subsequent design thinking phases.

//INTERVIEW SESSION WITH A STUDENT

- 1.What are the most difficult challenges you face when trying to balance your academic responsibilities?
- 2.Could you describe a specific time when you felt overwhelmed by academic tasks or obligations?
- 3.How are you currently tracking your academic progress and goals?
- 4.What tools or methods do you use to stay organized in your studies?
- 5.How do you seek help from lecturers, parents, or peers in your academic journey?
- 6.What specific features or functionalities would you like to see in an academic management tool or app?
- 7.How do you approach goal setting in your academic life, if at all?
- 8.Do you have any positive or negative experiences with existing academic management tools or methods?

Above is the list of questions for the interviewees

#### Second phase:

Building on the insights gained from the empathize phase, our team systematically compiled a list of problems derived from diverse sources. Through collaborative efforts and post-it notes, our team organized and prioritized these challenges. This phase focused on creating a clear understanding of the multifaceted issues faced by students in organizing their academic life.

LIST OF PROBLEMS STATED BY A STUDENT

1. Deadline Stress: Struggling to meet assignment deadlines and manage time efficiently.
2. Organizational Challenges: Difficulty organizing and locating academic materials when needed.
3. Feedback Confusion: Difficulties understanding and applying feedback from instructors.
4. Goal Alignment Issues: There is a lack of clear alignment between academic goals and daily tasks.
5. Subject Overwhelm: Feeling overwhelmed by the amount of information in various subjects.
6. Difficulty Accessing Essential Learning Resources or Study Materials.
7. Communication Gaps: Students and instructors have limited communication.
8. Procrastination Challenges: Overcoming procrastination and delaying tasks.

Above is the list of the causes of the problems we listed out.

Third Phase:

During the ideation phase, we engaged in a brainstorming session. Leveraging the Canva app streamlined our collaborative efforts, making idea generation more accessible. The online platform facilitated discussions, allowing us to refine and prioritize ideas seamlessly. This interactive approach enabled us to collectively assess and eliminate less crucial elements, ensuring a focused and effective ideation process.

Fourth Phase:

We created a prototype using cardboards and A4 papers, a tablet case was crafted to visualize the app interfaces. The selection of a tablet as the "digital gadget" aimed to enhance the visualization of the user interface. In the prototype test, the team demonstrated the app's functionality by arranging the interfaces within the makeshift "tablet," bringing their envisioned solution to life.

In summary, the design thinking evidence reflects a systematic and collaborative approach by the student team. They not only identified the problem but also ideated and prototyped a comprehensive solution in the form of the eduTrack app, catering to the diverse needs of students, lecturers, and parents in the academic environment.

## PROTOTYPE



Logo Apps

The image displays three screens of the EduTrack mobile application:

- Welcome Screen:** Shows the "eduTrack" logo at the top left. Below it are three circular icons with labels: "STUDENTS" (teacher icon), "PARENTS" (parent and child icon), and "TEACHERS" (teacher icon). A large "Student!" title is centered.
- Sign Up Screen:** A "WELCOME" header with "Student!" below it. It features a "SIGN UP" button with input fields for "USERNAME", "E-MAIL", and "PASSWORD". Below the form is a "Sign up" button. At the bottom, there's a link "Already have an account? Sign in→" and a back arrow icon.
- User Profile Screen:** Displays a profile picture of a student girl and the text "Student". It includes sections for "Name" (Nur Hani Elysha binti Zikrin Idrus) and "Official Email" (HaniElysha@gmail.com). Below this are sections for "Information": "Z93SB1156" (student ID), "BACHELOR OF SCIENCE (BIOLOGY)" (degree), "2/SSCGH" (grade), and "FSB" (Faculty). A red "UPDATE" button is at the bottom right. The background features a grid pattern and small icons for charts, a laptop, and a document.

**GENETICS**

**BIO CHEMISTRY**

**ANATOMY AND PHYSIOLOGY**

**CELL BIOLOGY**

**RESEARCH METHODS**

**GENETICS**

Quiz 1: 10/10 (5%)  
Assignment 1: 48/50 (4.8%)

Quiz 2: 85/100 (4.3%)  
Assignment 2: 49/50 (4.9%)

Mid Term Test: 67/80 (16.8%)

Cannot update, authorised only!

Goodjob!! But try for more on upcoming quiz  
Well done dear!!!

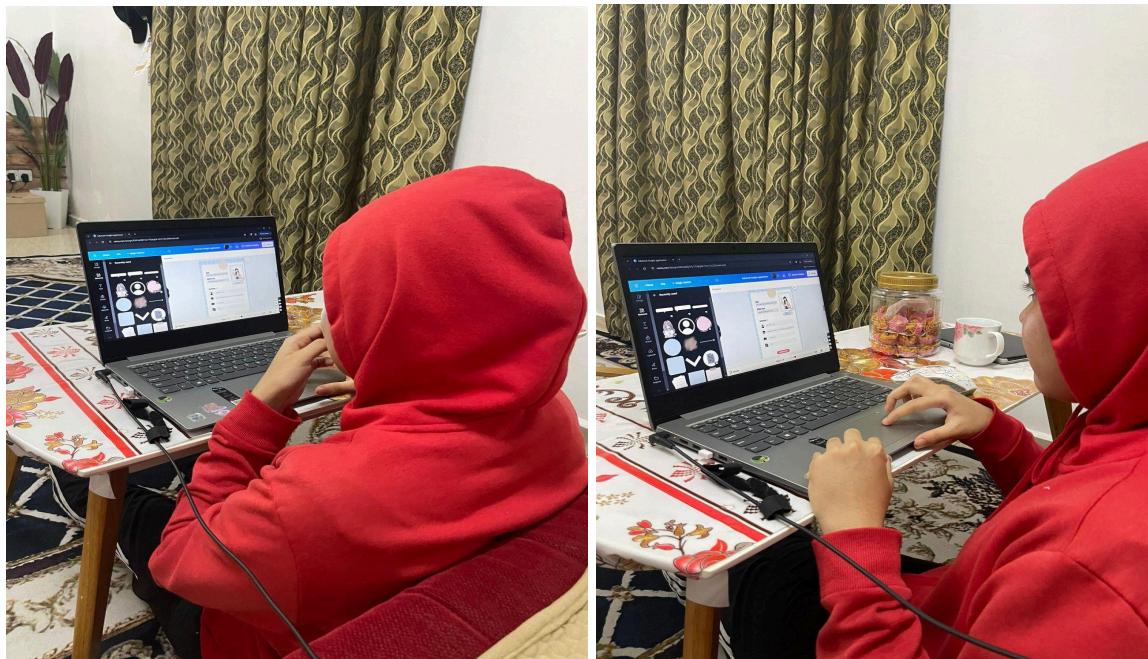
Dr. Zain

MR. ZAIN

**NOTE**

- ✓ Genetics
- ▶ Biochemistry
- ▶ Cell Biology
- ▶ Research Methods

### Insights of application



Editing App

## **REFLECTION FROM EACH MEMBER**

### **1. REFLECTION BY NUR HANANI BINTI AHMAD**

My goal in developing eduTrack is to help students keep up with their educations such as academic evaluation, financial issues, tracking attendance, etc. This will not only benefit the student but also for the lecturers and parents who are constantly worried about their student's progress. Design thinking has helped me in organizing my thoughts and ideas about the project. It helped me view the problem and solve it through being empathetic with users, brainstorming all the possible solutions and creating a prototype for it. This method has helped us create eduTrack with the best kind of services as we could. Our eduTrack are occupied with features like Grade Tracker, Goal Setting, and Progress Monitoring will definitely be a huge help towards our targeted audience. My plans that I think are necessary to enhance our potential in the industry is to establish a community forum or discussion board within eduTrack, fostering a sense of belonging and allowing users to share experiences, tips, and advice.

### **2. REFLECTION BY ABBENISHA ANN MICHAEL BENEDICT**

My goal in developing eduTrack was to enhance the academic experience of students, lecturers, and parents. Design thinking enabled me to empathize with users, identify unmet needs, brainstorm solutions, and refine prototypes. This methodology made eduTrack more than just a tracking tool; it was also a collaborative hub, complete with features like the Grade Tracker, Goal Setting, and Progress Monitoring. The app's user-centric approach and continuous feedback-driven improvement demonstrate how design thinking can help me achieve my goals. Moving forward, my primary focus will be on improving eduTrack, optimizing the user experience, and using new features to keep it at the forefront of educational technology, fostering a more engaging and successful learning journey for everyone who uses it.

### 3. REFLECTION BY NUR AINA BALQIS BINTI MOHAMAD ZAPARIN

In developing eduTrack, my main goal was to tackle the complex challenges within education by adopting design thinking as our guiding framework. By immersing ourselves in user experiences, we created innovative solutions to meet diverse needs. Design thinking's iterative nature allows continuous refinement, ensuring eduTrack evolves with the dynamic educational environment. Features like Grade Tracker and Goal Setting go beyond progress tracking, emphasizing our commitment to fostering goal-oriented learning. We see eduTrack as an active participant in shaping a meaningful educational experience. Looking ahead, my focus is on sustaining relevance by listening to user feedback, understanding evolving needs, and proactively enhancing the app. We aim to position eduTrack as a lasting asset in the ever-evolving educational technology landscape, contributing to the advancement of learning journeys for students, educators, and parents.

### 4. REFLECTION BY KRISTINE ELLE BENJAMIN

My goal throughout finishing this project was to enhance my understanding of technology and information systems, ultimately becoming proficient in addressing complex challenges within the field. Design thinking has significantly impacted my goal by providing a structured approach to problem-solving. It encourages innovation, empathy, and iterative solutions. Moving forward, my focus is on continuous improvement, optimizing user experience, and staying ahead in educational technology. To enhance my potential, I plan to establish a community forum within eduTrack, facilitating user interactions for a more engaging learning journey.

## 5. REFLECTION BY IZZATY BALQIS BINTI SUHAIMI

Embarking on the development of eduTrack, my goal was to enhance the efficiency of the educational process and improve the learning experience for both students and educators. The implementation of design thinking methodology and collaborative sessions inspired imaginative thinking, leading to the development of EduTrack into a multipurpose and adaptable system. Design thinking will be evident in my future dedication to skill development, building professional networks, and ensuring that EduTrack maintains its positive influence on the education sector. This journey highlights how design thinking fuels my commitment to significant contributions in educational technology.

## LIST OF TASKS FOR EACH MEMBER

<b>MEMBER'S NAME</b>	<b>TASKS AND RESPONSIBILITIES</b>
NUR HANANI BINTI AHMAD	<ul style="list-style-type: none"> <li>● Interviewing students</li> <li>● Providing necessary evidence for the report</li> <li>● Help with detailed description</li> </ul>
ABBENISHA ANN MICHAEL BENEDICT	<ul style="list-style-type: none"> <li>● Listing the topics needed in the report</li> <li>● Wrote introduction</li> <li>● Helped with the design thinking assessment point</li> </ul>
NUR AINA BALQIS BINTI MOHAMAD ZAPARIN	<ul style="list-style-type: none"> <li>● Wrote detailed description for problem,solution and teamworking</li> <li>● Suggested the education progress tracker idea during the brainstorming session.</li> </ul>
KRISTINE ELLE BENJAMIN	<ul style="list-style-type: none"> <li>● Contributed in providing evidence for the design thinking process.</li> <li>● Suggested ideas during the brainstorming session.</li> </ul>
IZZATY BALQIS BINTI SUHAIMI	<ul style="list-style-type: none"> <li>● Create and design the prototype of logo and each insights</li> <li>● Suggested ideas during the brainstorming session.</li> </ul>

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