Online Activity No. 8 and 9:   Applying the User-Centred System Design Process

Objective

1. Innovate an existing interactive system and computer technology.
2. Perform and apply UCSD.

Materials

- Personal computer
- Any software for (Computer aided designs)or programming language

Background

Atakan(2006), UCSD is used in the design process. Reasons are evaluated why traditional-technology-focused design processes why it may result in unusable systems-and the consequences of those unusable or useless systems. This leads directly to a consideration of the different methodologies that go to make up a user-centered system design process.

Procedure

a.) Identify a scope or agenda
b.) Format for the document is given below as guide for the designers in the making the output both the document and design.

Chapter I. Introduction

Background of the study

Students and workers struggle to track their daily transportation expenses. Traditional methods such as jotting down fares in notebooks or relying solely on memory are prone to error and are inconvenient for long-term tracking. This lack of structured fare monitoring often leads to overspending and poor budget management.

To address this gap, the group proposes a digital fare-tracking system called Farely. This mobile-based application is designed to help users monitor, record, and manage their daily commuting expenses efficiently. Through user-friendly features such as fare input, budget setting, and trip summaries, the application ensures that users gain better control over their transportation spending habits. The system aims to promote budget awareness and accountability by offering an intuitive interface tailored to everyday commuters.

Statement of the problem

1. **There is no existing automated system for fare tracking that is personalized for individual commuters.**
   Most users either do not track their expenses or do so using informal, unreliable methods like memory or scattered notes, leading to possible inaccurate budgeting.

2. **There is no real-time system to categorize transportation costs by type or date.** Commuters have difficulty identifying patterns in their spending due to the lack of categorization or timeline filtering in current manual methods.
3. **There is no accessible way to compare actual fare expenses against a self-imposed budget.** Without a monitoring tool, users often exceed their intended budgets without noticing.

Assumption of the study

The proposed prototype will address the mentioned problems through the following features:

- **Fare Input**: Allows users to input daily commute information such as date, time, transport type, and fare cost.

- **Summary View**: Offers a visual overview of recorded trips and their costs.

- **Budget Setting**: Users can define their weekly/monthly budgets and receive feedback on how close they are to their spending limits.

- **Transportation Type Tagging**: Enables categorization of fare entries via transportation type.

- **Mobile Accessibility**: Ensures the tool is available anywhere, anytime, directly on a user's phone.

These features validate the assumption that Farely can simplify and improve personal fare monitoring while enhancing financial responsibility.

Significance of the study

1. **Commuters:** They benefit the most from this study as it gives them the ability to track, budget, and manage their transport fares.
2. **Students**: With typically limited allowances, students can manage their daily transportation spending more wisely and adjust routines based on fare data.
3. **Young Professionals:** Often juggling between work, errands, and personal appointments, this system allows them to evaluate commute efficiency and cost.
4. **Developers:** This study offers insights into how a user-centric fare tracking system can be developed and improved for future iterations or similar applications.
5. **Financial Advisors/Educators:** Can use Farely as a model to promote budgeting tools for beginners and advocate for financial responsibility starting with daily expenses.

Chapter II. Research Design

The group used the **User-Centered System Design** (UCSD) model, ensuring that the system is tailored to meet real users' needs, preferences, and behavior patterns.

A. **Task Analysis**
   1. Launch the application.
   2. Log in or create an account.
   3. Access the home screen.
   4. Navigate to the "Add Fare" page.
   5. Input fare details: date, time, cost, transport type, payment method.
   6. Save fare record.
   7. View updated summary of fare records.
   8. Set or adjust the fare budget (weekly or monthly).
   9. Monitor remaining budget and total spending.

B. **Requirements Gathering**

   1. **Interview**
      We interviewed 10 frequent commuters (5 students, 5 workers) about how they manage their daily transport spending. Most admitted to not tracking or using only mental notes. 8 of the interviewees stated they are willing to track their daily fares and would benefit from better financial decisions while 2 interviewees stated daily fare tracking was least of their priority.

User Requirements:
- Must be able to add fare entries easily.
- System should be mobile-friendly and intuitive.

Functional Requirements:
- Log in/out functionality.
- Fare input form with validation.
- Budget setting and tracking.
- Summary of all fare logs.

Data Requirements:
- Store fare entries with date, time, transport type, and cost.
- User authentication data (username/password).
- Budget values.

Environmental Requirements:
- Mobile-responsive design.
- Compatible with Android devices.
- Requires internet for cloud-based data storage (or local DB option).

Usability Requirements:
- Must be simple and quick to navigate.

- Fonts and icons should be readable.
- App must respond quickly without lag.

Designer's Requirements:
- Design should prioritize UX with clean, minimal layout.
- Data input screens must be clutter-free.

C. **Storyboarding and Prototyping**

LOGIN AND HOME PAGE
Users are able to login or create a new account. Navigation to all available features via Home page.
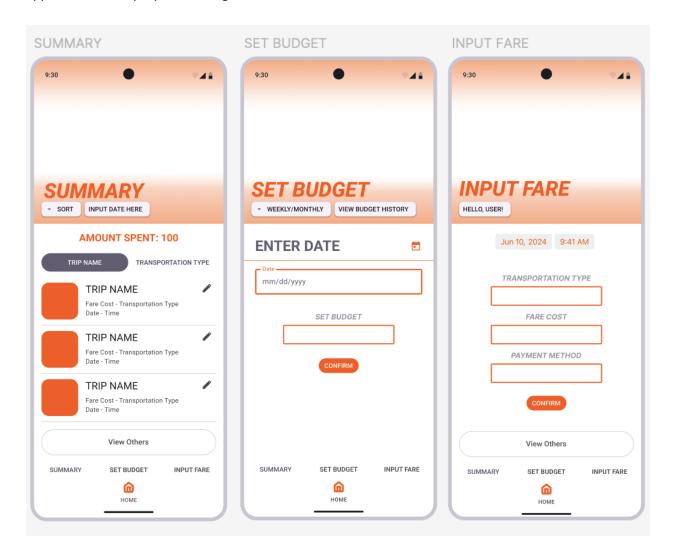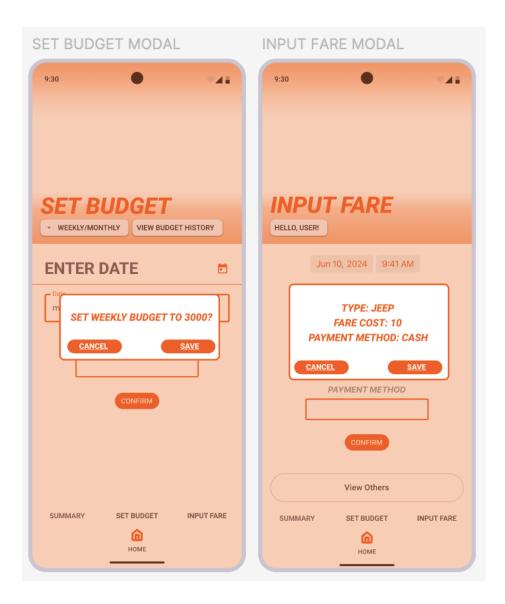
SUMMARY, SET BUDGET AND INPUT FARE PAGE

Summary - Users can check their overall fare summary and total amount spent for a specific timeline. Records can be sorted via date, name (a-z), transportation type. Aside from the sort dropdown option, users can also manually input the date for a faster and specific search option. Users can also edit existing records via the edit button, and they will be routed back to the input fare page where all existing records will be automated in the blanks.

Set budget - Users can set their fare budget weekly or monthly. They can also view their budget history records.

Input Fare – Users can input their new fare entry and categorize it via transportation type, fare cost, payment method used, date and time. Specific inputs (ex. Integers for fare cost) in some fields will be applied to ensure proper handling.

SAMPLE CONFIRMATION MODALS (SIMILAR DESIGN FOR EDIT AND DELETE CONFIRMATION MODALS)
Confirmation modals for every action is present to ensure proper interaction handling. The same layout
will be used for delete and edit confirmation modals, except it will ask the user if they confirm the action,
and inform them that some of these actions are irreversible.

D. **Evaluation of prototype**

Evaluation Criteria (Based on the 10 heuristics of design evaluation)

Area of Evaluation	5	4	3	2	1
A. Visibility of System Status - The system design provides appropriate feedback like message prompts in response to user actions.	x				
- The message prompts are clear, visible and understandable.	x				
B. Match between the system and the real world - Used words, phrases and concepts according to users' language rather than system oriented words and computer jargons.	x				
C. User control and freedom - The system design provides ways of allowing users to easily "get in" and "get out" if they find themselves in unfamiliar parts of the system.	x				
D. Consistency and Standards - The colors, text, labels, buttons and other elements in the design are uniform from start to finish**.**	x				
- Text and icons are not too small or too big.		x			
- Menus and other features of the system are arranged and positioned in a consistent way. (For ex. If your website has navigation buttons on the top under the page title on one page, the users will automatically look there for the same features on other pages.	x				
E. Error Prevention - The system design provides an automatic detection of errors and preventing them to occur in the first place.			x		
- Idiot proofing mechanisms are applied			x		
F. Help users recognize, diagnose and recover from errors **-** Error messages and the terms used are recognizable, familiar and understandable for the users.					
G. Recognition rather than recall **-** Objects, icons, actions and options are visible for the user. - Objects are labeled well with text and icons that can immediately be spotted by the user and matched with what they want to do.		x			
H. Flexibility and efficiency of use - The system design provides easy to navigate menus. - the system does not make wasteful time of system resources.	x				
I. Aesthetic and minimalist design		x			

-Graphics and animations used are not difficult to look at and does not clutter (mess) up the screen. - Information provided is relevant and needed for the system design.					
J. Help and Documentation -the system design provides information that can be easily searched and provides help in a set of concrete steps that can easily be followed.			x		

Chapter III. Conclusion and Recommendation

By including key features like fare input, budget setting, and summary viewing, **Farely** helps users keep track of their transportation expenses in a simple and organized way. Users can log their commutes, categorize them by transport type, check their total spending, and compare it to their budget—all through an easy-to-use mobile app. These features solve the main problems identified earlier, such as the lack of fare categorization and budget comparison tools.

Farely was designed with real users in mind. Through interviews and feedback, the team focused on making the app clear, easy to use, and accessible on mobile. Confirmation pop-ups for actions like editing or deleting entries also help prevent mistakes and build user confidence.

This project shows how user-focused digital tools can improve everyday tasks like budgeting for transport. It also allowed the researchers to better understand **Human-Computer Interaction (HCI)** by creating a system that's both practical and user-friendly.

Recommendations:

- Future versions of Farely should include visual tools such as pie charts or bar graphs to allow users to analyze fare trends over time. This can enhance self-awareness and budgeting habits.

- Introduce alerts or reminders when users are nearing or exceeding their weekly/monthly fare budget.

- To accommodate users with inconsistent internet access, offline fare entry and budget tracking should be enabled, with data synced once the user reconnects to the internet.

- Add a feature for users to export their fare logs in PDF or CSV format for personal use, school/work reports, or archiving.

- The prototype should be tested across a more diverse range of users, including older adults, non-tech-savvy users, and commuters with irregular routines, to gather broader insights for UI/UX improvements.

- Allow users to define their own categories (e.g., "school trip," "work errand," "personal") to make the system more flexible and personalized.