Annotated Table of Contents Coursework COMP-1649 Human-Computer Interaction and Design (2023-2024)

Below is an example of how a table of contents for your coursework report COULD look like. You can use a different structure to what is shown here as long as the relevant content is covered.

Your report should demonstrate sufficient English proficiency, (critical and concise) writing, structuring and report formatting skills. In-text citations and references need to be correctly formatted in Harvard style. The word count for the report should be about 2000-3000 words long. You need to include at least 12 academic in-text citations/references (e.g. academic conference papers, journal papers, chapters from academic books) to support your writing.

The format of prototypes must be Axure files (.rp) unless agreed with the lecturer otherwise. Prototypes submitted as mobile Apps, database driven web applications or any other proprietary formats that requires installation is not permissible and no points can be awarded for such prototypes.

# Introduction

*Brief introduction to the coursework and the structure of your report.*

# Background literature

*Aim to cover the following two areas to help to understand the context of and relevant theory, to inform your design.*

## HCI Research

*Provide an overview of your literature research on the topic of the project brief (e.g. HCI research and studies with similar products or contexts) to develop your conceptual design and your requirements. The chosen literature should be relevant for eliciting requirement for your prototype. Describe your main findings and indicate what* ***requirements*** *or inspiration were drawn from your findings.*

* Provide general background information on Diving apps

In this project, I will design an interface for an application. This application supports the divers. This app includes two main features. Firstly, this app can help the diver to take photos and videos when diving. The last feature is they can track their diving action and can watch them after finishing the diving process.

* Present related work on the coursework topic by introducing some existing products of Diving apps (focus on tracking diving activity and taking photos and videos)

To perform this project, I found and saw three model applications that had been developed before.

Firstly, this is the Diving Log application. This app helps the divers track their diving process. This app has some features such as measuring the diving time, diving position, depth, and temperature of the water. With the Diving Log, we can share the dive logbook online and accessing the diving location on the map. (DivingLog, 2023)



Secondly, this is the DiveMate application. This app can help divers save their diving memories such as photos or videos. Besides, this app supports maps for divers in the diving process. DiveMate allows us to connect the smartphone or tablet with dive computers directly to perform the tracking or take photos and videos in diving processing. (divemate, 2022)



Thirdly, this is the Garmin Dive application. This is one of the diving apps to support divers in diving processing. Garmin Dive has a lot of useful features to help the divers, whether that is new divers or veteran divers. This app supports some feature like Tracking dives log, Searching for popular dive locations on the map, and Reviewing the diving history and statistics. (Dive, 2023)



* Provide a review of related literature on the coursework to get the requirements drawn from the literature
* Mention about your work on the coursework

## HCI Theory

*Brief discussion of relevant concepts and theory from the HCI field and how they will be applied in the coursework. This could include relevant background literature (e.g. in relation to cognitive psychology, interaction design theory), and different modes of interaction (e.g. voice, touch), types of interaction, design principles and design patterns. Discuss how this literature will inform your product, such as your* ***requirements*** *or* ***design****.*

* + 1. **Interaction design principles and interaction design patterns**
* Definition of Interaction Design **(Week 1)**

Interaction design is the design interactive items to help people in their daily life and working live. (Sharp, 2019)

* Interaction design principles **(Week 1)**

• Generalizable abstractions for considering various design aspects

• Interaction design's dos and don'ts

• Assist the designer in determining what to include and exclude from the interface.

• Resulted from a combination of knowledge based on theory, experience, and common sense

(Sharp, 2019)

* Interaction design patterns (**Week 3)**

Design Pattern is a solution to a problem in a context. These patterns are generative and can be performed in different ways. The design pattern is often used in practices like designing the user interface. However, there are some types of dark patterns that ani-patterns. Design Dark Patterns is often used to further business value at the cost of user value. This pattern is designed to trick everyone into performing the some of certain behaviors.

* **Interaction design principles applied to this coursework**
  + 1. **Investigation in cognitive psychology (Week 4)**
* Brief definition of cognition
* How aspects of cognitive psychology affect interaction design

+ Attention

+ Perception

+ Recognition

+ Memory

* **Cognitive psychology principles applied to this coursework** 
  + 1. **Interaction design framework (Week 2 & Week 3)**
* User-centered design
* Goal-directed design
* Activity-centered design
* Participatory design
* **Interaction design framework applied to this coursework**
  + 1. **Interaction design theory**
* Definition of Conceptual model **(Week 2)**

+ Definition of Conceptual model

+ Metaphors

* Definition of prototypes, Low to High fidelity prototypes **(Week 8)**

+ Definition of prototypes

+ The main types of prototypes: low - fidelity prototypes, mid - fidelity prototypes, high - fidelity prototypes

* **The types of prototypes applied to this coursework** 
  + 1. **Types of interaction and modes of interaction (Week 2)**
* The main types of interaction:

+ Instructing

+ Conversing

+ Manipulating

+ Exploring

* **The interaction types applied to this coursework**
* The modes of interaction:

+ Touch

+ Voice

* **The interaction modes applied to this coursework**

# Design Process

## Conceptual Design

*Present the conceptual design of your proposed design solution. This description should go beyond the digital interface alone. You are only asked to describe the product and interactions, and not the technical attributes of the product. You can include visualisations to give the reader a rough idea what the product and overall solution will look like. However, this does not have to be very detailed. Show how your work has been informed by the outcomes from your literature research on HCI Research and HCI Theory in the previous section. Demonstrate in your proposed solution how the requirements from the literature have been met.*

* + 1. **User requirement**

In this project, I must design a low and mid-prototype for a mobile application to support the divers in their diving activity. In order to perform this application, I have two suggestions for this application with two main modules:

* Diving Tracking module: this module can help divers record their diving processing, save diving tracking, review the tracking processing after finishing the diving, view the map, measure the depth, and search for the diving track saved.
* Taking photos and videos: This module allows the divers to take photos and videos in their diving processing, review them, and search the photos and videos saved.
  + 1. **Problem statement and design solutions**
* Problem: Designing a low and mid-type prototype for a mobile application to support the divers in their diving activity to track their diving action and take photos and videos at the place where they dive to get diving memories.
* To solve the above issues, I suggest some solutions to solve this issues that the system should include some functions:
  + **The diving tracking module:** This module includes some features such as adding a new diving track (play, pause, resume, and stop), reviewing the diving track, viewing the history diving track, renaming the diving track, searching for diving location.
  + **The Take Photos and Videos module:** This module includes some features such as taking photos and videos, reviewing the photos and videos, searching for the photos and videos saved, and deleting the photos and videos.
  + **The Setting module:** This module includes some features such as changing the password, editing the profile, viewing about app, helping the users, and turning on/off the Bluetooth, Wi-Fi, and GPS.
  + **The authentication module:** This module includes some features such as register, login, sign-out, and recovery password.
    1. **Hierarchical model**

**A diagram of a vehicle

Description automatically generated**

* + 1. **Conceptual model**

*A diagram of a computer

Description automatically generated*

|  |  |  |
| --- | --- | --- |
| **No.** | **Icon Name** | **Meaning** |
| 1 | Play icon | To start video or track processing |
| 2 | Turn on/off icon | To turn on/off the connection |
| 3 | Stop icon | To finish taking videos processing |
| 4 | Resume icon | To continue taking or viewing video processing |
| 5 | Pause icon | To pause viewing or taking video processing |
| 6 | Dive Track icon | Switch to Dive Track interface |
| 7 | Camera icon | Switch to the interface to take photos or videos |
| 8 | Setting icon | Switch to Setting interface |
| 9 | Account | Switch to account interface |

## Design principles **(Week 1)**

*Include a discussion of how design principles will be integrated in your (interface) design and how it can be evidenced by the interactions in your prototype. It is expected that the principles of visibility, feedback, constraints, consistency, and affordance (as coined by Don Norman) are discussed as a minimum.*

* Introduce the design principles (as coined by Don Norman), e.g., visibility, feedback, constraints, consistency, and affordance.
* Discuss how design principles will be integrated in your design and how design principles can be evidenced by the interactions in your prototype.

# Prototype

*Briefly introduce and discuss your final mid-level prototype and describe how the design is informed by the research that has been carried out, as well as the concepts and the principles discussed in the previous sections. Include screenshots of the final prototype (focusing on the digital user interfaces) and provide explanations on your design process, such as the iterations made, and the problems solved. Demonstrate how the design progressed over time and discuss the purpose of your prototype.*

*Note: A series of static images is not a mid-fidelity prototype, your submitted Axure RP prototype needs to include interactivity that can be experienced and that demonstrates the design of the interfaces and interactions close to how the real product would look like.*

*There need to be clear links between coursework report and the your prototype. There needs to be evidence for the effective and successful application of Interaction Design principles to create a prototype that can be used to test core concepts of your design and that is suitable as a learning tool for researchers and designers.*

* The prototype should have implemented all guidelines and implemented the findings from earlier research and indicated this in the report (annotated screenshots)
  1. **Low-fidelity prototype**
* Show all figures of the low-fidelity prototype of the coursework and explain each figure
  1. **Mid-fidelity prototype**
* Show all figures of the mid-fidelity prototype of the coursework and explain each figure

# Research Study (Week 5 & Week 7)

*A proposal for a detailed (empirical) research study that uses your prototype to test at least one assumption that you have made when designing your prototype. In this step, you need to present the design of a research study including the research question(s) or hypothesis that your research study attempts to answer, and the material required to run the study (e.g. questionnaires, interview questions, consent form templates etc.). What hypothesis or research question are you investigating? Who are the participants of your study and how will you find participants? How will the study be run and how will you analyse the data?* ***You are not asked to run the study but only to design the necessary research instruments so that someone else, such as a usability researcher could run the study using your plan, materials and your prototype.*** *You need to create all necessary instruments and documentation (e.g. a questionnaire, interview questions, consent form templates etc.) that is required to run the study. This documentation should be included in an Appendix.*

* Present two hypotheses or two research questions that you are investigating
* Identify the suitable participants of your study and present methodology to find them
* Present how the study should be run. You should mention about the UX research method you are applying (e.g. behavioural methods, attitudinal methods, quantitative research, qualitative research). You can provide a questionnaire for your hypotheses or your research questions.

<https://www.nngroup.com/articles/which-ux-research-methods/>

<https://www.scribbr.com/methodology/qualitative-quantitative-research/>

* Present how the data should be analyzed (e.g. using graphical representations)
* Conclude for proving your hypotheses or answering your research questions
* Using Heuristic evaluation to evaluate your mid-fidelity prototype - using Nielsen's 10 usability heuristics (at least 6/10 principles) **(Week 10)**

<https://www.youtube.com/playlist?list=PLJOFJ3Ok_idtb2YeifXlG1-TYoMBLoG6I>

# Conclusion

*Provide critical reflections on the work that has been completed. What are some of the limitations and constraints of your research, report, process and prototype? What could have been improved? What would be potential next steps for this project? Go beyond just repeating what has already been said elsewhere in the report.*

* Present what have been completed on the work
* Present the limitations and constraints of the work
* Present what could have been improved
* Present the potential next steps in the project (E.g. a high fidelity prototype, more research etc.)

# References

*Make sure all your references and in-text citation are correctly formatted using Harvard format. If you are unsure about the Harvard format, use suitable tutorials and guidelines provided by the UoG library and the guidance given for your final year project.*

* References ought to be formatted in **Harvard style**.

# Appendices

*Include here the material from section 5 and other appendices.*

* Show all figures of the questionnaire you designed in “Chapter 5. Research Study”