Lab #1
Introduction to UX. Design Principles.

Objectives:

- Understanding the purpose of User Experience Design.

- Understanding stages of the design cycle.

- Understanding principles of design

- Identifying and analyzing realization of principles of interaction (fundamental design principles) in existing systems

Procedure:

UX design is **user centered** design. Users use interfaces to accomplish tasks. The analysis of existing systems can bring the understanding how users completing similar tasks now.

Collecting interaction design requirements is an essential stage of the UI design development.
The goal of requirement gathering is to **understand** the **problem space**. To determine the problem space, we need to learn who are the **users** of the system, **when, where, why**, and **how** they currently accomplish the task in question, what can be improved from the current practices.

Functional requirements describe how the system is expected to behave. For example, the web-site system must allow a user to purchase a particular ticket and should provide suggestions for other purchases based on past visits and purchases.

Non-Functional requirements describe general characteristics of the system. They express the quality attributes of the system:

performance requirement – time to do things

look-and-feel requirement – how end user perceive the product

device requirement – features of the product

accuracy requirement – level of precision to be achieved

usability requirement – how people will interact with the product

Example, the website should allow a user to access her account and modify her information.

User experience requirements specify **non-functional requirements** for the user interaction and user interface of the system. For example, the website should have a visible and consistent navigation menu.

The system, which you selected for analysis has implemented **basic principles** of **interaction** in the design:

affordances, signifiers, feedback, constraints, mapping, consistency, conceptual model.

Affordances define the actions a user can perform on a system. Affordances provide strong clues to the operations of a system. Affordance refers to attributes of a system that allow users to know how to utilize it.

Signifiers are used by designers to make affordances apparent to a user. Signifiers (label, drawing, or other signal) make the affordance more apparent.

Feedback communicates the effect of any interaction, making it both visible and understandable. It should be prompt, meaningful and perceivable so that users know their actions were detected. The connection between the action and the result should be made obvious, so that people know what happened, why it happened and what they should do next. Feedback should always simplify and support the user's experience, instead of complicating it.

Constraints in UI of a system restrict user behavior at a point in the interaction. They help a user understand the status of a system. Limiting what users can do at a given time is one of the ways to improve user experience.

Mapping refers to the design of controls in the way they behave, how accurate presentation the controls is in regard to the functions they perform.

Consistency refers to having similar operations and similar elements for achieving similar tasks. Implementing consistency in a system greatly improves user experience.

Consistency is analyzed not only within a particular system interface, but across the many interfaces users are using across their devices.

Similar elements that are perceived the same way make up the visual consistency. It increases learnability of the product. Fonts, sizes, buttons, labeling and similar need to be consistent across the product to keep visual consistency.

Similar controls that are functioning the same way make up the functional consistency. It increases the predictability of the product. Predictability leads to users feeling safe and secure.

Combination of both visual and functional consistency is **internal consistency**. It improves the usability and learnability of the product. Even when you introduce new features/pages users will have easy way using them as long as you keep the internal consistency.

External consistency is achieved when there is design consistency across multiple systems.

The conceptual model is the actual model that is given to the user through the interface of the system (how a system works).

Usability testing involves asking potential users to utilize a system (websites, mobile apps, and software) and observing what problems arise from using it.

Usability testing can be conducted at any time in the **User Centered Design** (UCD) process, but most beneficial usability testing happens as early as possible. **Usability testing** happens multiple times during a project as a part of iterative design process.
In this lab, we will apply **usability testing** to benchmark an **existing system**.

"**Competitor analysis**" analyses **existing systems** so that features of good and bad design can be identified based on a predefined set of criteria.

A **usability test** divides into four phases—**planning**, **doing**, **analyzing**, and **reporting**.
In this activity, you will be conducting a **usability test on an existing system**.

Task:

Choose an **existing** web site, mobile application, or other kind of IT artifact for evaluation, which you have not used before.
The web site/mobile app/artifact can be in the realm of suggested topics or any web site/mobile app/artifact of your choice.

Conduct usability analysis of the system of your choice.

Write a report summarizing your investigation.

1. Provide **information** about the **system** tested.
   Describe the system (web site/mobile app/artifact) in terms of **functional requirements** and **non-functional requirements**.
   Functional requirements can be described as a list of tasks users can complete with the system, or as **use cases**.

2. Reflect on the **learnability** of the system for using it first time. How easy is it for a user to accomplish basic tasks the first time they encounter the design?

3. Describe the **efficiency** of the system. Once users have learned the design, how quickly can they perform tasks?

4. Reflect on **memorability** of the analyzed system. When users return to the design after a period of not using it, how easily can they re-establish proficiency?

5. How many **errors** do users make, how severe are these errors, and how easily can they recover from the errors?

6. Reflect on your user experience with the system from the perspective of the UX designer: implementation of **fundamental principles of interaction** on the UI of the web site/mobile app/artifact of your choice. (Shneirman's 8 Golden Rules of UX design or 10 Heuristic NNG Principles).

7. Describe user satisfaction from utilizing the system. How pleasant is it to use the design?

8. As you work on your analysis of the system, take screenshots to support your findings. Take notes and screenshots when reflecting on wait times, difficulties, useful features, and poorly implemented features.

9. *Extension: present your suggestions for improving design of the system based on the analysis of the system.*

10. **Submit your report as a pdf file (design_principles.pdf) via Moodle.**

Suggested topics for an interactive system (website or mobile application):

1. System that allows college students to create and participate in study groups for effective and efficient learning and examination preparation.

2. System that helps residents and tourists discover, enjoy and visit attractions in the Kelowna area.

3. System that gets people who often do not get out into nature, to discover, appreciate and visit Kelowna trails and parks.

4. System that helps people to keep track of their daily personal finances.

5. System that supports an organization or club of your choice in recruiting new members.

6. System that supports and encourages people to act in environmentally friendly ways.

7. System that helps people changing habits.

8. System that encourages people to drink responsibly.

9. System that supports communication with other members of traffic while in a car.

10. System that helps elderly people to improve their social life.

11. System that encourages people to push their limits in a sport.

12. System that helps elderly keep track of things to do and things to come.

References:

Smashing UX Design: Foundations for Designing Online User Experiences. Allen Jesmond, James Chudley. John Wiley & Sons, 2012.

Introduction to User Experience Design. Coursera, Michigan State University, www.coursera.org/learn/user-experience-design.

Designing the User Interface: Strategies for Effective Human-Computer Interaction, Ben Shneiderman, Catherine Plaisant, Maxine Cohen (2016), Pearson

The Design of Everyday Things, Don Norman (2013)

"Practical UX Methods" UX Methods, Http://tonic3.Com/, practicaluxmethods.com/.