Assignment Goals
The aim of assignment one is to help you understand the concepts of affordances, design principles, usability goals and user experience goals. You will conduct a user interface evaluation and use the heuristic evaluation process. Most of this assignment is about gathering observation data from real systems, analysing and thinking about what you saw against the principles and goals. Finally you are to prepare a brief report to the museum recommending enhancements. This assignment is to be completed individually.

1 For this assignment you will visit the Power House Museum, Darling Harbour Sydney, where you will evaluate various interactives from the Cyberworlds Exhibition.

An “interactive” is the term used by the museum to describe a computer-based system that provides museum visitors with an interactive experience. Typically, interactives consist of a computer system, video screen, touch screen and speakers and may look more like an information kiosk than a general purpose computer. Some interactives use different forms of input and output devices depending on the task and the experience that the exhibit conveys.

The aim is for you to consider the design of interactive systems and how various interactive elements can produce both positive and negative usability outcomes. This provides an opportunity for you to apply your understanding of usability principles and to enable you to think about usability in a real situation such as a museum, which is available to the general public.

Once you have completed the assignment tasks, take some time to look around the museum to consider issues of design and usability for public spaces. Whilst we are not assessing this activity in this assignment your experience at the museum will be important for future assignment work.

1 Image from the CyberWorlds Exhibit, Power House Museum
**Assignment Overview**

- Define the principles of affordances, visibility, feedback, constraints, mapping and consistency
- Provide sketched examples with annotations (4) from interactives in the Cyberworlds Exhibition that demonstrate each of the principles of affordances, visibility, feedback, constraints, mapping and consistency
- Conduct a user interface evaluation of an interactive in Cyberworlds, noting your findings in your design diary
- Use heuristic evaluation to organise your interface evaluation
- Describe how the interactive has or has not adopted usability goals and user experience goals

**Assessment**

This assignment is an individual assignment and will contribute to 10% of your final assessment.

**Reference**

The material and definitions is described in the course textbook: Preece, Rogers and Sharp, *Interaction Design*, Chapter 1, 2002. Norman, *The Design of Everyday Things* also provides various insights into the design in general.

**Design Diary**

Take your design diary (not loose sheets of paper) with you for sketching and noting your observations, timing and ideas. Remember to date each page of your diary. From your design diary notes, you will compile a typed report. Scan or digitally photograph relevant sketches from your design diary and include them in the relevant sections alongside the text.

![Design Diary Sketch](image)

Figure 1. An example of a design diary sketch that uses a wire frame to show the general layout of the interface.

**Design Principles**

You will first need to define (in your own words, with appropriate references) the following terms:

- Affordances
- Visibility
- Feedback
- Constraints
- Mapping
- Consistency
Explore the Cyberworlds Exhibition, and identify 2 user interface examples that illustrate each of the principles. Choose one positive and one negative example. For instance, you may identify that one interactive provided audio and visual feedback when the user selected a menu choice, but a different design failed to provide any meaningful feedback when it was performing a long duration operation.

Indicate which interactive you were investigating, provide a hand-drawn sketch of the relevant user interface layout, annotate the sketch with text so that it clearly describes the properties that make the example a good or bad design. If you have chosen a negative example, provide a design sketch indicating how the interface could be improved.

The assessor must be able to view the sketch and clearly see why the example you have presented is an example of the principle.

You should be able to fit each principle on a single page.

Example

**Affordance**

*Definition: An affordance is....*

*Example (+) XYZ Interactive.*

<Positive example illustrating what an affordance is. Sketch.>

This is a positive example of an affordance because....

*Example: (-) ABC Interactive*

<Negative example illustrating lack of consideration for affordances. Sketch.>

In order to provide more clues to the user, the design could have been enhanced by doing...

<Enhance sketch>

**visibility**

... etc

**Usability Principles**

In this section you will consider usability goals, user experience goals and heuristic evaluation for one specific interactive. Based on the first exercise, you should have an overall sense of the various interactives. Consider which usability goals and user experience goals would be the most important set for evaluating a museum exhibit.

Choose one interactive from the Cyberworlds Exhibit. Record its name.

Use the interactive to develop an understanding of the overall objectives of the system. What is the purpose of the exhibit? What is the flow of activities during typical interaction? What options are presented to the user?
Review the interactive, listing the usability issues that you uncover in your design diary. It is a good idea to take notes as you are using the system since it is possible to forget some of the subtle details. Noting the issues in time sequence can be useful if you are trying to understand issues that deal with the sequence of actions.

Tabulate your observations with column headings: time, description, an area to sketch and whether the observation is positive or negative. You might leave a separate column for additional comments for when you categorise your notes later in the process. Try to identify both positive and negative aspects of the design. For example, a positive observation might include that the layout was aesthetically pleasing, using colours of a similar hue whereas a negative observation might be that the terminology used on the buttons was confusing since it didn’t properly describe the actions performed.

<table>
<thead>
<tr>
<th>Time</th>
<th>Description</th>
<th>Sketch</th>
<th>+/-</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:01</td>
<td>First impressions were positive. The main page was really well presented. Controls were well labelled</td>
<td><img src="image1.png" alt="Sketch" /></td>
<td>+ Effective</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>+ Aesthetically pleasing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>+ Great photo, fun</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>+ Visibility - could see all the available options</td>
</tr>
<tr>
<td>11:03</td>
<td>In the second screen the name of go forward on the button was not clear.</td>
<td><img src="image2.png" alt="Sketch" /></td>
<td>- Terminology</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- No help to tell what to do</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Aesthetics - too close for touch screen use</td>
</tr>
</tbody>
</table>

Figure 2. Possible configuration for tabulating/recording your observations.

Consider the 6 usability goals listed below (Interaction Design, Section 1.5.1, p14). How well did the design satisfy the usability goals? Where all goals met? Where all goals relevant? Which ones are important to an interactive?

• Effective to use (effectiveness)
• Efficient to use (efficiency)
• Safe to use (safety)
• Have good utility (utility)
• Easy to learn (learnability)
• Easy to remember how to use (memorability)
Consider the 9 *user experience* (UX) goals listed below (Interaction Design Section 1.5.2, p18). Which user experience goals were relevant? What aspects of the design helped support the user experience goals?

• Satisfying  
• Enjoyable  
• Fun  
• Entertaining  
• Helpful  
• Motivating  
• Aesthetically pleasing  
• Supportive of creativity  
• Rewarding  
• Emotionally fulfilling

**Heuristic Evaluation**

You will consider what each of the 10 principles listed below (from Nielsen in Interaction Design, p27) actually mean:

1. Visibility of system status  
2. Match between system and the real world  
3. User control and freedom  
4. Consistency and standards  
5. Help users recognise, diagnose and recover from errors  
6. Error prevention  
7. Recognition rather than recall  
8. Flexibility and efficiency of use  
9. Aesthetic and minimalist design  
10. Help and documentation

For your chosen interactive, consider each principle and determine how the interactive supports the principle or not. Draw a sketch of the relevant user interface elements and provide a short description of how this example illustrates or contradicts the principle.

**Report and Recommendations**

You will provide two sections as part of your interactive evaluation. First you will provide an overall summary of your observations and comparison against the design principles. This document could be considered as an internal technical report of observations notes that you would be used internally within your company. It is a refined version of your evaluation follow The second report is similar to what a consultant would provide to a client. It is a brief report making recommendations on how the exhibit could be enhanced that would be presented to museum staff. You may include some sketches to illustrate some of the points that you raise.

The report to the museum should be not more than 2 pages. Part of the exercise is to be concise and to carefully consider what you prepare in your report.
Page Limit
The assignment submission is limited to 12 pages (maximum) of 12 point text, 2.54 cm margins (including sketches, excluding the CSE cover page). The cover page will be available on the web site.

Checklist
- 12 point font, 2.54 cm margins (no adjustments to squeeze in more text)
- CSE Cover Page completed
- Originality and plagiarism acknowledgement
- Attach original museum receipt (we will have to have a separate paper submission)
- Design principle definition, 2 annotated sketch examples
- Summary of observations comparing against usability goals, user experience goals and heuristic principles
- Evaluation report to the museum staff
- References, including material from the Power House Museum
- Check spelling and grammar
- Save as PDF
- Submit electronic version (details to be on class web site)

Submission
Each student shall conduct their own work and submit their own assignment. The assignment is to be electronically submitted in PDF format. Refer to the class web site for full upload details.

Pages are to be numbered. CSE cover sheet is to be placed at the beginning.

A separate paper cover sheet will most likely be required for originality acknowledgement and the original museum entry ticket.

Power House Museum Details
Location: 500 Harris Street, Ultimo
Visitor Information: http://www.phm.gov.au
Cost: $6 for concessions (take your UNSW Student card)
When: 10am – 5pm, daily

Note that there is no photography permitted in the exhibition. Under no circumstances are you allowed to interview or ask questions of any of the other visitors to the museum.

Late Penalty
10% per calendar day late will be deducted from the final mark.

Plagiarism Policy
Plagiarism will result in a mark of zero. Refer to the school plagiarism policy for further explanation.