COMP3007 HCI, Usability and Visualization

20 CREDIT MODULE

ASSESSMENT: 100% Coursework   **W1: 30% Set Exercises**

W2: 70% Report

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MODULE STAFF: Dr. Muhammad Asad

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MODULE AIMS

- To develop an awareness of good practice in HCI.
- To create appropriate plans for evaluating the usability of software.
- To introduce students to the concepts and techniques of 'Information Visualization' and highlight it as an application area of HCI principles.

ASSESSED LEARNING OUTCOMES (ALO):

- Critically evaluate the usability of a small software system and document the user feedback gathered.
- Redesign the front-end of a small software system in line with good practice in HCI based on user feedback and core HCI principles.
- Apply the techniques of 'Information Visualization' and/or devise own techniques to the analysis of data.

1. Overview of COMP3007 Assessment

This document contains all the necessary information pertaining to the assessment of COMP3007 HCI, Usability, and Visualization. The module is assessed via one **100% coursework element**, across two components: *30% Set Exercises* and *70% Report*.

The sections that follow will detail the assessment tasks that are to be undertaken. The submission and expected feedback dates are presented in Table 1. All assessments are to be submitted electronically via the respective DLE module pages before the stated deadlines.

	Submission Deadline	Feedback
Set Exercises (30%)	March 3rd 15:00	March 31st
Report (70%)	May 5th 15:00	June 2nd

Table 1: Assessment Deadlines

All assessments will be introduced in class to provide further clarity over what is expected and how you can access support and formative feedback prior to submission. Whilst the assessment information is provided at the start of the module, it is not necessarily expected you will start this immediately – as you will often not have sufficient understanding of the topic. The module leader will provide guidance in this respect.

2. Set Exercises

2.1 Ask me!

If you have any queries about this assignment, please talk to me during office hours. This is the very best way to get answers. Alternatively, email me so I can clarify anything that is unclear.

My best TIPs to getting a good mark in your Set Exercises are
- o start early and work consistently week after week
- o make the most of your time with me in the labs
- o be absolutely meticulous with the order of content in your video.
- o make sure you follow the time guidelines given ending your video at 6:00 minutes.

All the very best

2.2 What do you need to do?

You are required to run a Ux evaluation by completing the following six Set Exercises:

(a) Select a piece of software/website to evaluate during these Set Exercises. This must be unique, not the same as anybody else in the class.
- o To register the software/website you have chosen, please go to Software website dataset selection.xlsx.

(b) Plan a Ux evaluation of this software. Gather up your documentation to ensure you are (and that you can evidence you are) working with human participants ethically. You will need all of the following:
- o University of Plymouth Ethics Approval
- o Research Information sheet
- o Participant Right to Withdraw slip
- o Ethics Consent Form
- o Task scenarios – the list of tasks you will ask the participant to do
- o Exit questionnaire – why the participant wants to quit your study, any reasons

You will need to design the task scenarios and exit questionnaires based on the software/website you have chosen. We will provide the rest of the documents for you on DLE.

(c) Carry out a "mock" evaluation with one of your peers.
- o This is essential professional practice as it identifies whether you have any issues in your planning or documentation.
- o Make any corrections or changes to your evaluation process as required.

(d) Now you are ready to start by recruiting your 7+ participants.
- o Note that the ethical approval covers you to use other Plymouth University students as well as family and/or friends.
- o Note that everyone you test must be over 18 years old.

(e) Run your usability evaluations with your 7+ participants.

o There may be time to do some evaluations during our labs.

(f) Create a 6-minute video submission as specified below:
   o Your video will be the only submission for the COMP3007 Set Exercises. It is your responsibility to ensure it is complete.
   o Your video will be paused for thorough reading.
   o Do not simply read your slides.
   o Marking will end at 6:00 minutes exactly.

2.3 What do you need to submit?

The structure and order of content in your video is extremely important. Your video <u>MUST</u> be structured as specified in the following table. Please be very careful and pay close attention to these instructions. I want you to score as many marks as possible.

Content	Details	Marks
SECTION 1	Clearly mark the start of this section as Section 1.	
Present the software you selected and describe your evaluation.	o Use around 1 minute for this section. o Explain what we need to know about this software. What was its purpose? Explain your evaluation; the process you went through, about your participants etc. What did you actually do? o At the end of this section, you must show the below documents for 8-10 seconds in total (and in this order to avoid penalty). We will pause the video to read each one. - University of Plymouth Ethics Approval. - Research Information sheet. - Participant Right to Withdraw slip. - Ethics Consent Form - Task scenarios - Exit questionnaire.	20
SECTION 2	Clearly mark the start of this section as Section 2	
Describe your analysis and redesign process	o Use around 1.5 minutes for this section. o How did you collect data, what did you do with the data you collected? How did you go from data to decision making/deciding what to change and how to change it? o Ensure all text is big enough to read. o Finish by presenting an overview of all the issues you identified in your data analysis. Group them into two lists, **essential or desirable**, and prioritise the items in each list.	30
SECTION 3	Clearly mark the start of this section as Section 3	
Communicate (using any means) how you would change the software to overcome each	o Use around 3.5 minutes for this section. o Use it to explain/demonstrate how you would redesign your software/website to overcome the issues you identified in your study. For each redesign idea o Show a clear snapshot of the software/website before. o Show a clear snapshot of the software/website after. For example, you could use MS PowerPoint starting with the original snapshot and then overlay your ideas on top.	50

| of the issues you identified | o On both snapshots highlight the area of the screen you are describing. For example, you could draw a rectangle around that specific area of the snapshot.
o Show any number of redesigns in the time you have left. You can use the same before and after snapshot to highlight several different areas that you would redesign. | |

Table 2: Precise structure of your video

2.4 How do you submit?

Your video must be made available via YouTube. It should meet the following quality criteria:
- o Strictly follow the content structure given so you do not incur any penalties.
- o The video length should not be more than 6 minutes long. You must not speed up your video to gain more time. Marking will stop at exactly 6:00. No exceptions. Note, last year, some students scored lost marks because their videos went beyond the cut off. Therefore, they got no marks for all the ideas they presented after that point.
- o The resolution of the video should be 720p to 1080p.
- o Show only the application, not you, on your webcam. Please remember to narrate what you are showing; it is not supposed to be a silent movie. Also, please do not read your slides. Just explain what it is you are showing on the current screen.
- o Use the free obsproject (https://obsproject.com/) software if you do not have any that is appropriate.

Please submit the link to your YouTube video by copying the link into a PDF document and submitting the file on the DLE.
- o Please ensure you submit the link to the hosted video, NOT the video itself.
- o The video must be hosted on YouTube and unlisted; please check permissions. If you mark it as private, it will not be viewable and, therefore, unable to be marked.
- o Note that last year, some students failed their Set Exercises because they did not check their video was accessible to others. My suggestion is to ask a friend to test whether they can access your video before you submit it.

2.5 How will your work be marked?

The COMP3007 W1 (Set Exercises) Assessment Threshold Criteria (these are indicative only)

Criteria	Fail (<40%)	Pass (40%+)	Merit (60%+)	Distinction (70%+)
Video – Section 1 Present the **software** you selected AND Describe your evaluation.	- No software selected. - No or inadequate description of the software selected. - No video for this section. -No evaluation.	- Acceptable choice and description of the software selected. - The quality of the evaluation was adequate.	- Good choice and description of the software selected. -The quality of the evaluation was good.	- Comprehensive choice and detailed, clear description of the software selected. -The quality of the evaluation was excellent.
Video – Section 2 Describe your **analysis** and **redesign** process	- No analysis or redesign. - The video for this section does not exist or play.	- The video included an adequate description of this process. - Analysis identified a limited number of issues where redesign could improve the software.	- The video included a good description of this process. - Analysis identified a satisfactory number of issues where redesign could improve the software	- The video included a comprehensive description of this process. - Analysis identified a comprehensive number of issues where redesign could improve the software.
Video – Section 3 **Explain & demonstrate how you would redesign** your software	- No redesign of the software. - The video for this section was not submitted or does not play.	- The software was subsequently redesigned to overcome the limited issues identified. - Redesign of the software was communicated adequately.	- The software was subsequently redesigned to overcome the satisfactory number of issues identified. - Redesign of the software was communicated well.	- The software was subsequently redesigned to overcome the comprehensive number of issues identified. - Redesign of the software was communicated comprehensively.
Feedback/ Overall	*Additional feedback*			

Table 3: Threshold Criteria for Assessment 1

3. Report

3.1 Ask me!

If you have any queries about this assignment, please talk to me during office hours. This is the very best way to get answers. Alternatively, email me so I can clarify anything that is unclear.

My best TIPs for getting a good mark are
- o start early and work consistently week after week
- o make the most of your time with me in the labs

All the very best

3.2 What do you need to do?

You are now required to put everything you have learned in the module into practice. You will select a publicly available dataset, research it in detail, and then propose your own ideas for its information visualization. To do this, you will need to complete the activities specified in the remainder of this section. Once completed, you need to write up your work as a short research paper to submit it.

3.2.1 Select your dataset

The first thing you need to do is select your dataset. Again, to do so, please open Software website dataset selection.xlsx. Your dataset must be unique, not the same as anybody else in the class.

Your data must be selected from a site written in English and hosted in the UK or the USA. You will use this dataset throughout the entire report, so take your time and ensure you do this crucial task well. Having said that, some of you may need to set a deadline for yourselves so that you don't procrastinate unduly. There are many, many UK/USA sites where you can get access to publicly available datasets.

Here are a few to get you started:
- o Dataquest, '43 Free Datasets for Projects: Building an Irresistible Portfolio', viewed 22/01/25, 43 Free Datasets for Projects: Building an Irresistible Portfolio
- o Kaggle, 'Datasets', viewed 22/01/25, Search | Kaggle
- o Tableau, 'Free Public Data Sets for Analysis', viewed 22/01/25, Free Public Data Sets For Analysis | Tableau

Have a look; there is data on almost everything. This is something you can do right now, at the very start of the module.

During one of your lab sessions, you are strongly advised to show the lab demonstrator your UK/USA dataset to ensure that it is appropriate. We recommend that the dataset have a minimum of 20 unique variables (columns in the spreadsheet) and over 1000 instances of data (rows in the spreadsheet).
- o Note that columns need to be unique so that the data is genuinely multivariate (has enough depth for you to do your work).
- o For example, the columns Pressure, Volume, Temperature, Density and Viscosity are an example of variables that are unique.
- o For example, the columns Week 1, Week 2, Week 3, Week 4 are an example of variables that are NOT unique.

My top tip for this coursework is to start early, take your time on this step, and select a dataset that will provide you with lots of scope; the more, the better! As with all research, novelty can create a significant impact.

3.2.2 Research the current state-of-the-art for your dataset

The next step is to carry out some in-depth research into what good ideas and solutions are already available for the information visualization of your selected dataset. You should "cast your net wide…" for this part of the process. Look at past successes as well as new cutting-edge innovations.

Tip: If your dataset is about football statistics, you should start by researching the current state-of-the-art for football data. But do not just research football; research other sports, such as rugby and cricket, to gain as much insight into other ways to visualize your dataset.

3.2.3 Derive your own innovation (come up with your own innovative ideas)

The next part of the process is sometimes the most challenging yet always the most interesting part. This is a core reference to help get you started: Shneiderman, B. (1996). 'The eyes have it: a task by data type taxonomy for information visualization,' Proceedings of IEEE Workshop on Visual Languages, IEEE Computer Society Press: Washington. 336-343.

By this stage, you will know your dataset in depth. You will also have a thorough understanding of current methods used to visualize this information. So, now it's your turn to propose your own ground-breaking ideas for the information visualization of your chosen dataset!

It is satisfactory if you solely want to propose the novel application of relevant IV techniques to your dataset. It would be far superior if you derived novel, creative techniques of your own. Given all that you now know about your data and how it is currently visualized, what would you do next? What do you want to see? Where would you go next?

3.2.4 Prototype your ideas

It is entirely up to you how you present your innovative information visualization ideas for evaluation.

You can use any approach you prefer for this task, such as coding or using visualization tools. The focus here is on your research, the insight you gained, and the new ideas you are suggesting.

3.2.5 Evaluate your ideas

It is impossible for researchers to publish research in this applied area of computing without evaluation. Therefore, you are also required to carry out an evaluation of your ideas. It is entirely up to you how you evaluate your ideas. Refer to all the different techniques for evaluation taught in the module and select the most appropriate method for your investigation.

3.3 What do you need to submit?

You need to write up your work and present it as a short research paper. This is described in detail in the remainder of this section.

3.3.1 Writing your short research paper

Once you have completed the work, you are required to write up your work and present it as a short research paper. Researchers use short papers to report findings succinctly to the relevant research community. They are between 4-5 pages long; including references, diagrams, figures, and tables. Your paper must not go over the 5-page limit. No exceptions.

In addition, your paper must be professionally formatted. The remainder of this section is the amalgamation of guidelines from a selection of professional research publishers. These are the guidelines that all authors (including myself and many of the staff who teach you) are required to follow to publish their research. Note that the strict formatting rules are required to ensure that the final journal document looks coherent.

Tip: Using this correct paper format will enable you to add significantly more information/images to your report.

3.3.2 Report Structure

Start your paper by introducing it and put a nomenclature if necessary. The paragraphs continue from there and are only separated by headings, subheadings, images, and formulae. The section headings are arranged by numbers, bold and 14 pt. for main sections and 12 pt. for subsections.

Here is a report structure that you could use:
- Abstract/Introduction
- Description of data selected.
- Current state-of-the-art
- Your ideas/contribution to the field
- Evaluation of your contributions to the field
- Conclusions
- References

Please download and use the "Report Templete.docx" file from the DLE. It is an example document we have uploaded to the DLE, which is already formatted.

Your report should be created in MS Word only and should be formatted for submission using this MS Word style document. Figures and tables should be embedded and not supplied separately. Please make sure that you use (as much as possible) normal fonts in your documents. Special fonts, such as fonts used in the Far East (Japanese, Chinese, Korean, etc.) may cause problems during processing. To avoid errors, you are strongly advised to use the 'spellchecker' function of MS Word.

Follow this order when typing manuscripts: Title, Authors, Affiliations, Abstract, Keywords, Main text (including figures and tables), Acknowledgements, References, Appendix. Collate acknowledgments in a separate section at the end of the article, and do not include them on the title page, as a footnote to the title, or otherwise.

Bulleted lists may be included and should look like this:
- First point
- Second point
- And so on

Abstract/Introduction: An abstract or Introduction summarizes, usually in one paragraph of 300 words or less, the major aspects of the entire paper in a prescribed sequence that includes: a) the overall purpose of the study and the research problem(s) you investigated; b) the basic design of the study; c) major findings or trends found as a result of your analysis; and d) a brief summary of your interpretations and conclusions.

Tables: All tables should be numbered with Arabic numerals. Every table should have a caption. Headings should be placed above tables, left justified. Only horizontal lines should be used within a table, to distinguish the column headings from the body of the table, and immediately above and below the table. Tables must be embedded into the text and not supplied separately.

Construction of references: References must be listed at the end of the paper. Do not begin them on a new page unless this is absolutely necessary. Authors should ensure that every reference in the text appears in the list of references and vice versa. Indicate references by [1,2] or [1] in the text. Some examples of how your references should be listed are given at the end of this template in the 'References' section, which will allow you to assemble your reference list according to the correct format and font size.

Section headings: Section headings should be left justified, bold, with the first letter capitalized and numbered consecutively, starting with the Introduction. Sub-section headings should be in capital and lower-case italic letters, numbered 1.1, 1.2, etc., and left justified, with second and subsequent lines indented. All headings should have a minimum of three text lines after them before a page or column break. Ensure the text area is not blank except for the last page.

General guidelines for the preparation of your text: Avoid hyphenation at the end of a line. Symbols denoting vectors and matrices should be indicated in bold type. Scalar variable names should normally be expressed using italics. Weights and measures should be expressed in SI units. All non-standard abbreviations or symbols must be defined when first mentioned, or a glossary provided.

Acknowledgements: Acknowledgements and Reference heading should be left justified, bold, with the first letter capitalized but have no numbers. Text below continues as normal.

References
Note that the University of Plymouth Library has produced an online support referencing guide which is available here: Referencing - Referencing & Plagiarism - Library Guides at University of Plymouth. Another recommended referencing resource is Cite Them Right Online; this is an online resource which provides you with specific guidance about how to reference lots of different types of materials.

3.4 How do you submit?

Once you have prepared your MS Word document, **save it as a pdf document** and submit it on the DLE. Only pdf documents can be uploaded.

3.5 How will your work be marked?

These are the COMP3007 W2 (Report) Assessment Criteria/Feedback Template

Criteria	Fail (<40%)	Pass (40%+)	Merit (60%+)	Distinction (70%+)	Grade
Abstract Introduction + Description of data selected	- The report fails to describe the subject domain, the context or structure of the report. - The report fails to describe the selected data in sufficient detail.	- Sections are present in the report but they lack clarity and structure. - Provides <u>some</u> details of the selected dataset, vaguely presented.	- Concise and clear sections with appropriate context and structure being provided. - Provides <u>most</u> of the details about the selected dataset.	- Excellent, concise and clear sections with appropriate context and structure being provided. - Provides <u>all</u> of the details about the selected dataset.	**/20**
Current state-of-the-art + References	- Background research is <u>insufficient</u> lacking depth. - Report fails to describe the current state-of-the-art.	- Lacks in supporting evidence. - Lacks clarity and structure in communication.	- Good number of appropriate references. - Concise and clear communication.	- Well referenced with supporting evidence throughout. - Excellent, concise and clear communication.	**/20**
Your ideas and/or contributions to the field	- Innovation is <u>insufficient</u> lacking depth.	- Some basic innovation exists but it lacks originality. - Lacks clarity and structure in communication.	- Innovation is good, new ideas are presented. - Concise and clear communication.	- Innovative, unique, exciting, new contributions to the field - Excellent, concise and clear communication.	**/40**
Evaluation of your contributions to the field + Conclusions	- <u>Fails to provide evidence</u> of evaluation & reflection. - Fails to communicate clearly.	- <u>Lacks evidence</u> of evaluation & reflection. - Lacks clarity and structure in communication.	- <u>Provides evidence</u> of evaluation & reflection. - Concise and clear section communication.	- <u>Provides evidence</u> of <u>comprehensive</u> evaluation & reflection. - Excellent, concise and clear communication.	**/20**

Table 4: Threshold criteria for Assessment 2

4. Plagiarism

Historically, students have made mistakes regarding plagiarism of ideas in this module. Regrettably, I had to report these cases to the University. They were independently investigated, and the University took firm appropriate action for their dishonesty.

Please be careful!

4.1 All about plagiarism

This is not a collaborative piece of work. It is an individual work assignment and must be all your own work. Any plagiarism will be dealt with using the appropriate process; consult your student handbook if you are unaware of this, as it could jeopardize your studies. This link leads you to a comprehensive 6-

minute talk by Jason Truscott on how to avoid plagiarism. [Avoiding plagiarism - Student Learning Services](#)

All of your work must be of your own words. You must use references for your sources; however, you acquire them. Where you wish to use quotations, these must be a very minor part of your overall work. To copy another person's work is viewed as plagiarism and is not allowed. Any issues of plagiarism and any form of academic dishonesty are treated very seriously. All your work must be your own and other sources must be identified as being theirs, not yours. The copying of another persons' work could result in a penalty being invoked.

Further information on plagiarism policy can be found here:

o   Plagiarism: [Plagiarism - University of Plymouth](#).
o   Examination Offences: [Exam rules and regulations](#).
o   Turnitin is an Internet-based 'originality checking tool' which allows documents to be compared with content on the Internet, in journals and in an archive of previously submitted works. It can help to detect unintentional or deliberate plagiarism. It is a formative tool that makes it easy for students to review their citations and referencing as an aid to learning good academic practice. Turnitin produces an 'originality report' to help guide you.

5.   Issues affecting timely submission of coursework

5.1 Running late

Note that you if you are running late on the day of submission, you may submit your work up to 24 hours after the deadline. Late work is anything submitted after the deadline, even 1 minute after the deadline. So be careful as your clock may be different to the clock on the DLE. If you submit work late, it will be marked but the mark you receive will be capped at 40%. Work submitted more than 24 hours after the deadline will receive an automatic mark of zero. Tip: Always aim to submit work 24 hours in advance (never use the actual deadline; it's too risky as you may be hit with network issues and all sorts of other delays)

5.2 Illness

Sometime during your time at the University, you may get ill right before the deadline. If this happens talk to your Personal Tutor as soon as possible. They will advise you about the procedure of self-certification of illness and how to submit for a 5-day extension to your deadline.

5.3 Extenuating Circumstances (ECs)

Occasionally, during your time at the University, things may become very difficult for personal reasons/things beyond your control. At the University, we call these **Extenuating Circumstances**.
o   If you experience ECs, you should talk to your personal tutor about them as soon as possible. As appropriate, they will advise you on the process of submitting an ECs form. Note that this requires some evidence/documentation to prove what you are reporting to us.
o   When you submit an ECs form, you can apply for either an extension of 10 working days or non-submission (the opportunity to do it at another time, known as referral).

- After you submit, the faculty staff will assess your ECs to see if your documentation satisfies the University criteria for validation.

It is essential that you ask your Personal Tutor to explain the process to you as it's complicated and full of caveats of university policy.

NOTE: COMP3007 has one coursework element. It is made up of two components, the Set Exercises, and the Report. If your ECs are validated and you are offered a referral, it can only be offered at the Element level, not Component level. What does all that mean? It means that if you are offered a referral, you will be referred in the whole element (both the Set Exercises and Report). Any marks you had already got in the Set Exercises or the Report become invalid. Referral is a complete retake of the module; no marks are carried forward.

Also note that referrals which take place at the end of August, and they are marked during September. Therefore, referral marks are only available at the end of September after the external examiner has approved them.

Full details can be found in the University pages for Extenuating Circumstances here: Extenuating circumstances.

6. Responsible Use of Artificial Intelligence (AI) in Assessments

While technological advances such as AI (including ChatGPT) can be useful in supporting academic work, e.g. by aiding brainstorming, students are expected to use these responsibly and within the boundaries of academic integrity.

In general, AI tools such as ChatGPT should not be used in generating the final version of your work for submission. Utilizing ChatGPT or similar AI tools to generate the assessed work that you submit is considered plagiarism and a breach of our university's academic offences regulations. Such practices can result in disciplinary action, up to and including a requirement to withdraw from the university. You can find the current version of academic regulations and related guidance here: Student regulations, policies and procedures - University of Plymouth.

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