INFS 1026 - Systems Requirements and User Experience (SRUX)

Team Task. Weighting: 40% Date Due: Monday Week 13

Word Count: "Equivalent" to 2000 words

Assignment 2 202203 Instructions

This task is to be done in groups which **must** have been approved by your tutor.

Assignment feedback will be returned to you within two weeks of submission.

Feedback on this assignment will be provided via a marking guide which will be available on the course website.

This assignment will enable you to demonstrate the following learning objectives from the course identified as follows:

1. Given a problem statement, identify the key aspects of the users to construct user profiles and assemble the requirements based on stakeholder priorities
2. Describe the system requirements following appropriate standards
3. Explain a human centred design process

It requires you to define the business problem, identify and classify stakeholders, design two interview templates and identify functional and non-functional requirements from reverse engineering of Python code for the current system and incorporating additional details from the specification. This covers the Lean UX Framework activities within research and part of discovery.

Marking Criteria

The word limit will not be checked for this assessment.

The marking guide that will be used when assessing your work will be available on the course website.

As a team assessment, unless indicated in the peer review included in the assignment template, all team members will be responsible for:

- Use of the template provided with formatting maintained throughout the submission
- Completeness, accuracy and relevance of each response throughout the assignment
- Technical correctness of the various models created according to lecture and tutorial materials provided
- Creating UML diagrams are using draw.io as requested, following the processes defined throughout the lecture and tutorial materials, downloaded as a .jpeg graphic file and inserted into the submission file.
- Appropriate presentation of diagrams
- Consistent and correct writing style, spelling and grammar
- Clarity of expression
- Following all submission instructions

Important

- You **must** use the templates/layouts provided in the course notes and/or textbook for any answers, tables, models, diagrams or use case descriptions created.
- Diagrams must conform to the UML notation **used in this course**.
- **Diagrams should be produced using draw.io** ensuring they are legible and well laid out. It is the group's responsibility to ensure these are appropriately presented and incorporated into the document template. **Domain model diagrams may be created using UMLet**. However, you must ensure the syntax from the course is correctly implemented as per lecture notes.
- **Do not include** the scenario or question text in the document template. Use the template document as is.
- **Do not modify** any headings in the template
- Include your responses in the area indicated within the template headings.
- Ensure the **style is maintained** for each section.
- Post any questions in relation to the scenario or assignment to the Assignment 2 Clarification / Q&A Forum or your team discussion area.
- It is the team's responsibility to ensure that the document is checked for grammatical and spelling errors using the Review function in Word and corrections are made where appropriate

Academic Integrity

It is up to each group to make sure that the submitted work does not contain any **parts copied from another group** in this or any previous year, from this or any similar course; or from a **common source such as a textbook or website**.

The assignment must be your **own collective work, and not contracted to a substitute person**. If we are suspicious, we reserve the right to call you in and test your understanding of what you have submitted in an oral examination.

If plagiarism is detected it will be investigated and appropriate consequences will follow.

Submission Instructions

The assignment **must** be submitted through the course website. The file must be named with your team number eg **team3.docx**. Your team number is shown on the team discussion and next to your name in the submission area.

Please submit **only one** assignment per group – nominate someone to submit the assignment on the group's behalf.

Documents must be saved and submitted as **.docx**. Other file types **will not be marked**.

Individual submissions will **NOT** be considered or marked.

Assignment Scenario – PASS System

Background

Since the COVID-19 restrictions impacted on the students and teaching staff, SAIBT has reviewed their online resources for new and existing students to enable the variations in teaching and learning. The provision of hybrid classes to enable students unable to attend face to face lectures means the cohort remains as integrated as possible regardless of the students' location.

Additional resources discussed related to the provision of student directed assistance through Peer Assisted Study Sessions (PASS). This was available to students at SAIBT but was not readily available to students in the online environment.

PASS enables students to call upon peers who have previously excelled in courses to be involved as mentors to current students. The PASS "tutors" consist of a mixture of current students and those who have already progressed to their degree studies at UniSA.

In the past, students just turn up to PASS, but management at SAIBT would like to formalise the service to students, thereby tracking the success of the support facilities.

UniSA have had a similar system in use for several years. Students can sign up to attend PASS face to face and online via Zoom, which is especially beneficial for external students who must cope with variations in time zones or are studying and working full time. Schedules for all PASS sessions run at UniSA are advertised through a dedicated webpage, with the details of UniSA STEM student PASS sessions – IT and engineering students – available via this website:

https://i.unisa.edu.au/students/student-support-services/study-support/peer-assisted-study-sessions-pass/stem/

They also have a Facebook page where weekly updates can be posted and communication is enabled between PASS tutors and students using, for some, a more familiar communication medium than the Moodle discussion boards.

SAIBT have tasked IT students with determining the requirements for this system.

The Proposed System

The system will be accessible via any web enabled device and link through the Learning Management System (LMS) within SAIBT - Moodle. It is proposed that a tile will be created on the Student's SAIBT Portal page to enable access to the PASS program details. From here, the student can view details about the courses offering sessions, the timetable for the sessions and be able to book an appointment within a group session or even a one-on-one session with one of the PASS tutors. Each course which offers the PASS program will also have a link to book a session from their course web page.

PASS tutors will also be able to access course websites for which they are providing the sessions so they can view all resources available to students. Only the student's ID, name and email address will be available to PASS tutors with personal information about the student and their studies being the student's responsibility to share with the session tutor(s).

PASS Schedule

At the beginning of each semester, course coordinators will use the number of students enrolled in their courses to determine how many PASS tutors may be needed for the semester. There may need to be multiple tutors for some courses.

Timetabling of the sessions will be determined by the Academic Coordinator for the diploma. They will use the timetable set up for their diploma to determine appropriate times to schedule two PASS sessions per week based on the current timetable. One session will be timetabled for during the day and one in the evening to enable those who work or are in a different time zone to take advantage of the service. An additional time is set in reserve in case of increased need – around assignment time or exam time for example. Because of the fullness of the timetable each semester, this will usually be scheduled on an evening.

It is possible that the PASS sessions offered could include hands-on study help, perhaps set up in conjunction with the Tertiary Skills Development.

Pass Tutors

As previously mentioned, PASS tutors are either current or past students who have excellent study skills and understanding of the specific course. Some tutors are able to take sessions for multiple courses across the diplomas. In fact, some past students who have graduated from UniSA have registered interest in providing further assistance of an evening now they have entered the workforce.

It is foreseen that tutors would be able to submit their interest either for each semester or even each year. In putting forward this expression of interest, they provide:

- their name, email address and at least one contact phone number – mobile and/or landline
- past or current SAIBT ID to enable a unique identifier for each PASS tutor
- current address if different to the address currently in the system
- current studying status
    - SAIBT, UniSA, other institution or not currently studying / working
    - Stage of study or year of graduation if no longer studying
- a selection of courses they can assist with identified from the courses scheduled for the semester / year accompanied by a number representing the level of preference
- their availability recorded on notes associated with the person.
    - days
    - times
    - face to face / Zoom / both

Staff verify the details of these students and determine their suitability to assist with their elected courses. Some tutors may give more than one course a “1” level of preference.

By law, students also need to have a police check and current “Working with children” certification as some students at SAIBT are minors.

Once verified as a suitable tutor, the status associated with them is updated from “Expressed Interest” to “Awaiting Allocation”.

PASS Scheduling

It is proposed that the scheduling of PASS sessions be completed at the same time as scheduling of courses / timetabling. Discipline leads for each of the diplomas are asked to match the courses offered in the PASS schedule to appropriate tutors. They are asked to include a comment to explain their selection. They then schedule the PASS sessions for their courses. It is preferred that one session occurs on the same day as the class(es) offered for the course so students can attend the sessions with theory fresh in their minds. Tutors are then contacted to ensure they are available to offer their assistance at these times. Once they accept, they are associated with the specific session(s) and their status is updated to "Allocated".

On Monday of week two each semester, the PASS schedule is made available to students with the sessions starting at the beginning of week three. By this time, many students will have identified areas where they are struggling.

PASS Bookings

Bookings can be made or cancelled up to one hour before a PASS session. Students can select to book sessions for one or more courses and for multiple weeks at one time.

PASS Registration

When they first book, their Student ID is used to link their PASS bookings to their student record. This is to avoid duplication of student details. However, additional information identified as necessary for storage on the PASS system specific to the student includes:

- their preferred name
- an optional alternative contact method, for example WhatsApp or Facebook user details
- authorisation / request to communicate with the course coordinator or learning support about their progress

Once these details are entered, the student then selects the courses with which they need assistance. For each course, they enter a short description of the difficulties they are facing. Within this description, the student may identify how many times they have studied the course.

Booking PASS Sessions

To create a booking, the student selects the course they want from the list of available courses in which the student is enrolled. The system will then display the schedule of PASS sessions for this course. The student then selects the date / time combination of the session they want to attend. To make this more efficient, students have identified that it may be useful to book a block of sessions for the same course to ensure they have continued support. The system will show them a calendar showing the selected dates and ask the student to confirm their choices or change their selections. Once the student confirms their choices, the system asks if they want to book sessions for any other courses. The student can repeat the process for other courses they are having trouble with. When they select "Done" the system shows the compiled calendar and asks if they want to add the appointments to their Navitas calendar. If the student selects "yes", the system downloads an "ics" file which, when the student opens, updates their calendar in Outlook for their Navitas account. They can also select to save the information or have the list of sessions emailed to them as a reminder.

Lecturers and course coordinators, reflecting on progressive student performance, may request a student to enlist in a PASS, however they cannot insist they do so. A “referral” system may be set up to enable communication between the course coordinator or learning advisor to the PASS tutors for a specific group of courses to provide assistance to students who have been struggling with the transition to tertiary studies.

PASS Attendance

PASS tutors will record who attends each session, cross referencing student bookings and adding additional details of “drop ins” when they occur. Students may attend a session without a booking, but the tutor will ensure those who have booked are attended to before moving on to the drop-in students. If the session time expires before these students have had answers to their questions, they will be encouraged to email the questions to the tutor and to book a subsequent time for the next PASS.

PASS System Access

PASS tutors need to have access to the course websites to be able to see readings, assessment requirements and weekly task details to ensure they are providing the correct help to students. With permission from the student, they may commence communication to the course coordinator related to the individual’s progress or the need for additional detail in areas where many students are reporting the same issues with understanding a concept. There are questions about how this communication may be facilitated – by email, through teaching staff accessing tutor comments in the PASS system, message generation via chat or discussion board specific to the staff within the PASS system have been some suggestions thus far.

Management and course coordinators want to view several reports from, and related to, the PASS system. Reports would include:

- the use of the system
- variations to grades related to students attending PASS, especially if they are repeating a course
- compilation of PASS tutor comments based on individual student performance
- attendance at sessions for each course

Functional Requirements

Compiling information from assignment 1, the functional requirements of the system determined are as follows:

FR1: The system shall allow students to maintain their PASS account
FR2: The system shall enable student to maintain their PASS session bookings
FR3: The system shall allow students to view available PASS sessions for courses
FR4: The system shall allow scheduling of PASS sessions for courses
FR5: The system shall allow allocation of tutors to multiple courses
FR6: The system shall enable tutors to communicate availability and accept allocations for approaching semesters' PASS sessions
FR7: The system shall enable maintenance of referrals for a student to attend a PASS session
FR8: The system shall allow tutors to record attendance at sessions of students who booked and students who "Drop in"
FR9: The system shall allow PASS tutors to maintain comments related to student understanding shown in the PASS sessions

FR10: The system shall allow creation of reports to monitor the use of the PASS sessions, progress of attending students and general use of the PASS system

System Stakeholders

Compiling information from assignment 1, the functional requirements of the system determined are as follows:

SAIBT students	Will be using the app to book and talk to tutors
SAIBT staff	Will be using the app to check on students who are attending and send referrals
PASS Tutors	Will be using the app to apply for a position of PASS tutor, check course allocations, record attendance, communicate with teaching staff
Moodle courses	Information communicated from the system for storage in the LMS

Aesthetics – Usability Requirements

SAIBT has provided you with the following guidelines for the application layout. Use the readings associated with week 5 materials to assist you with your decisions related to the style and layout.

- The colour scheme of all screens should be a combination must conform to the SAIBT style guide requirements. The style guide basic details document is available in Assignment 2 Details titled "SAIBT Style Guide Information".
- Use the "Accessible color palette builder" to assist you with your choices of background and text colours for all components of the website. This site allows you to select a range of colours for use and shows you the most effective combinations of background and text colour for different elements. Select "Edit palette" and enter the codes from the SAIBT style guide

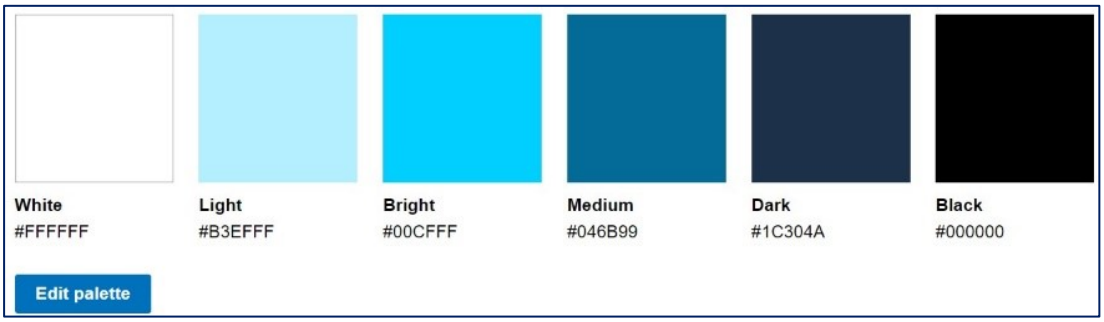
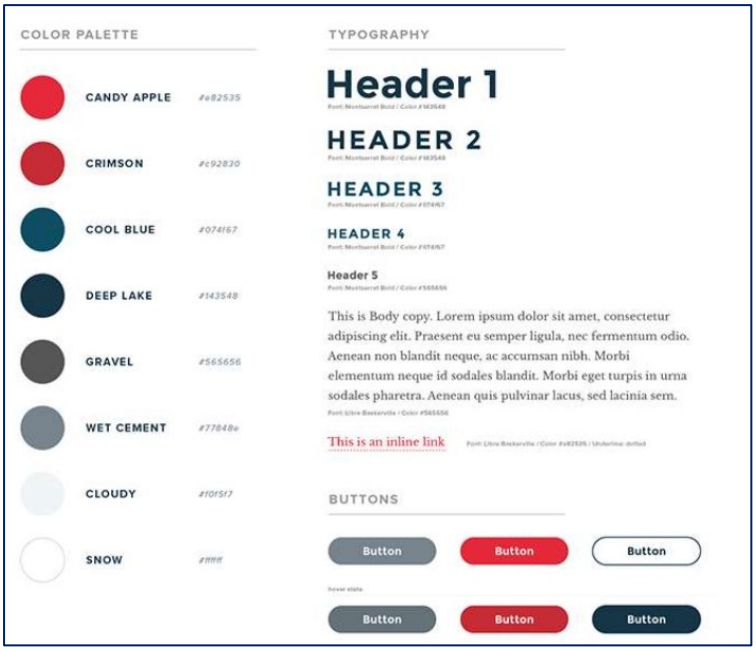


Figure 1: Colour selections (GitHub Inc 2022)

Figure 2: Combination of colour selections appropriate for maximum accessibility (GitHub Inc 2022)

- When you have made your colour selections, print screen the result and insert it into your assignment as a picture.
- Use selected elements from the saved colour scheme to create your style guide using the example below. You must include each of the components in the example – colour palette, typography and buttons – using the structure shown in the Style Guide Example below. You must include the name of the elements as shown:
    - Colour name and hex code or RGB code
    - Font, colour and size for each level of headings and other text
    - Buttons are required to measure no less than 10mmx10mm for graphic representation and must be a maximum of 10mm high for text buttons



Style Guide Example (Hu 2020)

Tasks

1. User Stories – Week 5

Using the list of requirements and details in the scenario, create user stories to represent the benefits of individual tasks to each of the stakeholders.

Due to the association of functional requirements to user stories, it is estimated that there are in excess of 20 user stories needed to describe the system. Information related to these will be found in the description of the functions in the scenario.

Ensure the format is followed precisely:

As a <stakeholder>, I want to <goal> so I can <benefit>

2. Storyboards – Week 5

Create one storyboard for each of the three stakeholders from the user stories defined in question 1. Ensure each are representative of the stakeholder's interaction with the system as well as additional factors such as frustrations, concerns and communication with others as appropriate. You must have a minimum of three cells for each storyboard.

3. Use Cases – Week 6

Using the information from the user stories and the functional requirements, create use cases to represent the required functionality of the system. Due to the association of functional requirements and user stories to use cases, it is estimated that there are in excess of 30 user stories needed to describe the system.

You must follow the instructions from week 6 related to format and level of detail for each. This requires the following to be defined for each use case

- Use case name – present tense verb + object
- The actor(s) who perform the use case
- The brief use case description, **describing the interaction** between the actor and the system.

Use the table in the template to complete the task.

4. Use Case Diagram – Week 6

Create a syntactically correct use case diagram to represent all use cases in question 3. The diagram must be created using draw.io and use only symbols as demonstrated in the week 6.

5. Use Case Description – Week 6

Using the table provided in the template, create a user goal / sea level use case description for the "Create booking" use case performed by a student as described in detail in the scenario above.

The table in the template is already populated with the default elements for the level and minimal guarantee. **Do not change these values in your answer**.

The “Main Success Scenario” must show both user and system actions.

Since there are decisions to be made in the scenario, the main success scenario should follow the path of the student selecting “yes” each time. The alternatives need to be handled in the Extensions.

6. Activity Diagram – Week 7

Create a syntactically correct activity diagram to represent the main success scenario **plus** extensions for the use case in question 5.

This diagram must be created using draw.io. All symbols used must be those as demonstrated in the week 7 lecture.

7. Domain Model Class Diagram – Week 7

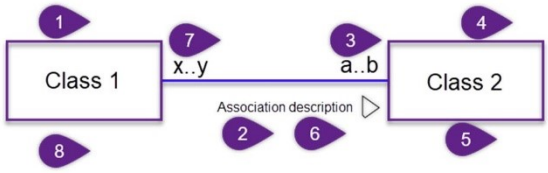
Create a syntactically correct domain model class diagram as demonstrated in week 7 to represent the database requirements for the system.

You can use either draw.io or umlet for this diagram. However, the symbols and syntax must precisely match the direction provided in the week 7 lecture.

Part of the diagram will be provided for you, representing the communication between the new system and relevant data from the student, course and enrolment subsystems. These existing classes must not be changed.

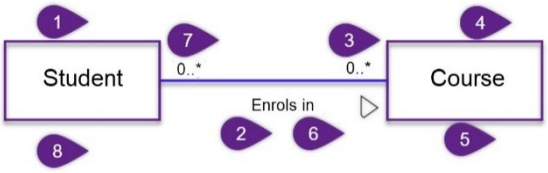
Once complete, create correctly formatted descriptions of the associations in the domain model class diagram as discussed in week 7 and demonstrated below.

- Subtypes must be described as “<subclass> is a <superclass>”
- Association classes must be described as “<association class> enables the many to many association between <class1> and <class2>
- All remaining associations must have exactly two statements formatted as shown in the diagram and step-wise statements below:



One <1> <2> <3> <4>
One <5> <6> <7> <8>

For example



One student enrols in zero or many courses
One course has enrolments for zero to many students

8. Information Architecture – Week 5 and Week 8

Information architecture was defined as groups of menus, submenus, website or app elements to provide a positive, pleasant user experience and ensure the user can find what they need. This was demonstrated in the week 9 tutorial where the information architecture of a system was demonstrated in a table-like structure.

Using information related to the **use cases in question 3**, plus aesthetics information in the section titled **"Aesthetics – Usability Requirements"**, create a **menu structure** and **style guide** for the system. You must follow the instructions in this section in relation to the layout of the information and inclusion of different diagrams / information.

Ensure you apply the theory from lectures 5 and 8 where colour and other website elements were discussed.

9. Prototype

Build two prototypes to represent the main screen and one of the use cases defined in Question 3 using the appropriate information from question 8.

You must **include all aspects of the information architecture** for the two user stories. There is no prescribed number of screens or elements as they will be relative to the user stories and information architecture. However, only providing a single screen will not produce a favourable user experience.

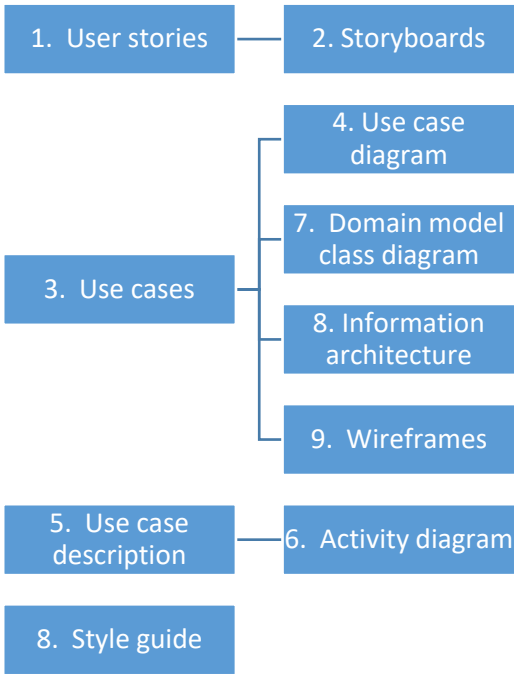
You must use wireframing software in Miro or draw.io / diagrams.net. . The prototypes should be **exported** and **inserted as images** to your submission.

Important

Do not just assign questions to team members.

This is a team assignment so you are expected to work together on solutions. Several questions depend on the answer from a previous question so random allocation of questions will lead to confusion and delay.

Dependencies



Work Plan

The assignment covers topics from weeks 5–11 of the course. Each task in the assignment clearly marks which week to refer to in order to complete it. A suggested work plan is:

1) Read the scenario text at least twice and take notes
2) Work with your team members to determine the answer / how to get the answer for **every** question
3) Make sure everyone is clear about how to get to the answer / the theory related to the answer
4) Allocate tasks based on team member strengths. If possible, work in pairs to enhance learning and support
5) Have a look at the resources described in the scenario available at UniSA
6) **As you attempt a task, refer to that week's material.** Syntax of models **must** follow the syntax demonstrated in class. Failure to follow these instructions will result in very poor marks.
7) **Start early enough to submit regular draft checks for different questions**. Michelle is quite willing to provide feedback on each question. Because of the dependence of responses on earlier questions, checking early is vital to avoid unnecessary rework.

Extensions

You must request an extension for this assignment at least **24 hours before it is due**. This must be done via email to your lecturer stating

- Why you need the extension
- Provide supporting evidence such as a medical certificate
- **Include a draft of the assignment completed thus far**. This may be a photograph of written notes, a highlighted copy of the assignment information, research performed: any progress towards the assignment.
- If a draft is not included or you do not show any evidence of commencing the assignment, **your extension may not be approved for the number of days requested**. You will also be required to attend a Zoom meeting with Michelle to enable your understanding of the tasks to be assessed.

Academic Misconduct

This is an individual assignment. Your submitted files will be checked against other student's submissions, and other sources, for instances of plagiarism. This includes collusion – working closely with other students and submitting the same or very similar responses.

Students are reminded that they should be aware of the academic misconduct guidelines available from the SAIBT website.