Clayfield College

Clayfield College (Clayfield)

Digital Solutions

IA2

Student name	
Student number	
Teacher	
Issued	24/01/2024
Due date	15/03/2024

Marking summary

Criterion	Marks allocated	Provisional marks
Retrieving and comprehending	8	
Analysing	8	
Synthesising and evaluating	10	
Communicating	4	
Overall	**30**	

Conditions

Technique	Project — digital solution
Unit	Unit 3: Digital innovation
Topic/s	Topic 1: Interactions between users, data and digital systems
	Topic 2: Real-world problems and solution requirements
	Topic 3: Innovative digital solutions
Duration	—
Mode / length	Source code with annotations:

- Written: 4–6 A4 pages

Documentation:

- Multimodal: 8–10 A3 pages

Demonstration of the functionality of the digital solution by video recording:

- Multimodal: 2–4 minutes

Individual / group	Individual
Other	Title and contents pages, reference list and appendixes are not included in the page count.
	Students may use class time and their own time to develop a response.
Resources	

- Computers
- Internet
- PyCharm (software)

Context

In this unit, you have studied Digital Innovation with a focus on Interactions between users, data and digital systems. The unit covers real-world problems and solution requirements.

A technical proposal is used to inform the development of a digital innovation for a client. A technical proposal includes detailed user requirements, diagrams and algorithms that outline how a proposed web application will interact with users and data stores.

Task

Develop a new web application according to the requirements outlined in the provided technical proposal for the REIQ (Real Estate Institute of Queensland). Document the problem-solving process in Digital Solutions and demonstrate the functionality of the components of the digital solution in a video recording.

The assessment instrument addresses all assessment specifications.

To complete this task you must:

- recognise and describe
    - programmed and user-interface components
    - useability principles, including accessibility, effectiveness, safety, utility and learnability
- symbolise using mind maps and one or more of constructed sketches, annotated diagrams, images or screenshots
    - the user and developer problem
    - algorithms communicated in pseudocode that demonstrate knowledge and understanding of programming features
    - interrelationships between user experiences and data in the prototype digital solution
- explain
    - internal and external data components and data structures using appropriate symbols, code, data samples and screenshots from the prototype digital solution with annotations
    - the solution from a user-experience perspective communicated by way of a collection of annotated images of the user-interface components
    - how programming elements and user-interface components connect communicated in an annotated diagram
    - the functionality, useability and efficiency of the coded components communicated through code comments and annotations

- analyse information and the prototype digital solution to identify
  - data inputs
  - data and programmed components and their relationships to the structure of the prototype digital solution
  - the prototype's potential personal, social and economic impacts
- determine
  - solution requirements
    - required essential elements and features of user interface
    - and data requirements
  - prescribed and self-determined success criteria
- synthesise ideas and information about solutions for
  - user interfaces
  - data and programmed components of a prototype digital solution, e.g. annotated diagrams identifying and describing proposed components of the prototype digital solution
  - data repositories
  - programming to generate a prototype digital solution
- generate
  - sample code for the digital prototype on the 4-6 A4 pages, demonstrating
    - selection
    - iteration
    - user input
    - data output
  - a prototype digital solution combining the user interface, data and coded components
- evaluate against criteria
  - personal, social and economic impacts supported by a collection of data samples or representations
  - the accuracy and efficiency of the coded components supported by a collection of annotated code segments in tables, diagrams and written paragraphs identifying errors and actions to make refinements
  - the solution from a user-experience perspective supported by a collection of annotated images of the user-interface components
- make refinements and justified recommendations for current and future improvements.

Stimulus

Please see the attached Technical Proposal.

Checkpoints

☐ Term 1 Week 5 - Submit exploration of solutions, identification of algorithms
   and user interface sketches

☐ Term 1 Week 8 - Draft due

☐ Term 2 Week 1 - Submission due

Authentication strategies

- You will be provided class time for task completion.
- Your teacher will observe you completing work in class.
- Your teacher will collect copies of your response and monitor at key junctures.
- Your teacher will collect and annotate a draft.
- You must acknowledge all sources.
- You must submit a declaration of authenticity.
- Your teacher will ensure class cross-marking occurs.
- You will provide documentation of your progress at all checkpoints.

Scaffolding

- A3 pages that demonstrate all phases of the problem-solving process and communicates knowledge and understanding by way of annotated sketches, diagrams, images or screenshots.
- Headings must be used to organise and communicate the iterative phases of the problem-solving process in Digital Solutions.
- A video must be prepared in a mp4 file format, no larger than 200 MB and demonstrates the functionality of the user interface, data and coded components of the prototype.
- A4 pages of code with annotations explaining analysis, synthesis and evaluation decisions related to the code element or problem.
- Sources must be referenced using the College's referencing style
- Written and visual features, as well as grammatically accurate language conventions, to communicate decision-making.

Instrument-specific marking guide (IA2): Project — digital solution (30%)

Criterion: Retrieving and comprehending

Assessment objectives

1. <u>recognise</u> and <u>describe</u> <u>programming</u> <u>elements</u> , <u>user interface</u> <u>components</u> and <u>useability principles</u>

2. <u>symbolise</u> and <u>explain</u> programming information and ideas, data structures and interrelationships between <u>user experiences</u> and <u>data</u> of the digital <u>prototype</u>

The student work has the following characteristics:	Marks
• <u>accurate</u> and <u>discriminating</u> recognition and <u>discerning</u> description of <u>relevant</u> programming elements, user-interface components and useability principles • <u>adept</u> symbolisation and discerning explanation of algorithms and relevant programming information and ideas, data structures and interrelationships between user experiences and data of the digital prototype.	7–8
• accurate recognition and <u>effective</u> description of relevant programming elements, user-interface components and useability principles • <u>methodical</u> symbolisation and effective explanation of algorithms and relevant programming information and ideas, data structures and interrelationships between user experiences and data of the digital prototype.	5–6
• <u>appropriate</u> recognition and description of some programming elements, user-interface components and useability principles • <u>competent</u> symbolisation and appropriate explanation of algorithms and some information and ideas, and interrelationships between user experiences and data of the digital prototype.	3–4
• <u>variable</u> recognition and <u>superficial</u> description of programming elements, user-interface components or useability principles • variable symbolisation and superficial explanation of information, ideas or interrelationships.	1–2
• does not satisfy any of the descriptors above.	0

Criterion: Analysing

Assessment objectives

3. <u>analyse</u> the problem and information related to the technical proposal for a <u>low-fidelity prototype</u> digital solution

4. <u>determine</u> <u>user interface</u> , data, programmed and solution <u>requirements</u> of the digital solution and prescribed and self-determined <u>criteria</u>

The student work has the following characteristics:	Marks
• <u>insightful</u> analysis of the problem and <u>relevant</u> contextual information to identify the essential elements and features of user interface, data and programmed components and their relationships to the structure of the low-fidelity prototype digital solution • <u>astute</u> determination of the user interface, data, programmed and solution requirements of the digital solution and <u>essential</u> prescribed and self-determined criteria.	7–8
• <u>considered</u> analysis of the problem and relevant contextual information to identify the relevant elements and features of user interface, data and programmed components and their relationships to the structure of the low-fidelity prototype digital solution • <u>logical</u> determination of the user interface, data, programmed and solution requirements of the digital solution and <u>effective</u> prescribed and self-determined criteria.	5–6
• <u>appropriate</u> analysis of the problem and contextual information to identify some elements and features of user interface, data and programmed components and their relationships to the structure of the low-fidelity prototype digital solution • <u>reasonable</u> determination of the user interface, data, programmed and solution requirements of the digital solution and some prescribed and self-determined criteria.	3–4
• <u>superficial</u> analysis of the problem or <u>partial</u> information to identify <u>aspects</u> of elements or features of the low-fidelity prototype digital solution • <u>vague</u> determination of some solution requirements of the digital solution and some criteria.	1–2
• does not satisfy any of the descriptors above.	0

Criterion: Synthesising and evaluating

Assessment objectives

5. <u>synthesise</u> information and ideas to determine data elements, user interface and programmed components for a digital solution

6. <u>generate</u> user interfaces and programmed components of the digital solution

7. <u>evaluate</u> <u>impacts</u> , components and the digital solution against prescribed and self-determined criteria to make refinements and <u>justified</u> recommendations

The student work has the following characteristics:	Marks
• <u>coherent</u> and <u>logical</u> synthesis of <u>relevant</u> information and ideas to determine data elements, user interface and programmed components for a digital solution • <u>purposeful</u> generation of <u>efficient</u> user interface and programmed components of the digital solution • <u>critical</u> evaluation of impacts, user experience and coded components and the digital solution against essential prescribed and self-determined criteria to make <u>discerning</u> refinements and astute recommendations justified by data.	9–10
• logical synthesis of relevant information and ideas to determine data elements, user interface and programmed components for a digital solution • <u>effective</u> generation of user interface and programmed components of the digital solution • <u>reasoned</u> evaluation of impacts, user experience and coded components and the digital solution against effective prescribed and self-determined criteria to make effective refinements and considered recommendations justified by data.	7–8
• <u>simple</u> synthesis of information and ideas to determine data elements, user interface and programmed components for a digital solution • adequate g eneration of user interface and programmed components of the digital solution • <u>feasible</u> evaluation of impacts, user experience and coded components and the digital solution against some prescribed and self-determined criteria to make <u>adequate</u> refinements and <u>fundamental</u> recommendations justified by data.	5–6
• <u>rudimentary</u> synthesis of <u>partial</u> information or ideas to determine data elements, user interface or programmed components • partial generation of user interface and programmed components of the digital solution • <u>superficial</u> evaluation of impacts, user experience components or the solution against some criteria.	3–4
• <u>unclear</u> combination of information, ideas or solution components • identification of a change to an idea or a solution.	1–2
• does not satisfy any of the descriptors above.	0

Criterion: Communicating

Assessment objectives

8. <u>make decisions</u> about and use mode-appropriate features, written language and conventions for a technical audience.

The student work has the following characteristics:	Marks

• <u>discerning</u> decision-making about, and <u>fluent</u> use of
  − written and visual features to communicate about a solution
  − language for a technical audience
  − grammatically accurate language structures
  − referencing and project conventions.
	3–4

• <u>variable</u> decision-making about, and <u>inconsistent</u> use of
  − written and visual features
  − suitable language
  − grammar and language structures
  − referencing or project conventions.
	1–2

• does not satisfy any of the descriptors above.	0