Project

Unit: ITPRJ-406-1502

Assignment: Project (Home)

Course: Advanced Diploma (Year 2)

Year: 2019\2020

Marks: 100%

*(To be filled by the assessor)*

|  |  |  |  |
| --- | --- | --- | --- |
| **Criterion** | | **Description** | **Total Mark** |
| 1.1 | AA 1 | Produce a requirements analysis | 7 |
| 2.1 | AA 2 | Produce a planning document | 7 |
| 3.1 | KU 1 | Identify appropriate design principles | 5 |
| 3.2 | SE 1 | Design a solution based on a brief | 10 |
| 3.3 | KU 2 | Show implementation of the chosen solution using appropriate development tools | 5 |
| 3.4 | KU 3 | Show how to effectively use chosen technology to implement a project | 5 |
| 3.5 | KU 4 | Examine and monitor project progress | 5 |
| 3.6 | AA 3 | Apply requirements appropriately to construct a project | 7 |
| 3.7 | KU 5 | Present software which is free from errors | 5 |
| 3.8 | KU 6 | Show how to implement non-functional requirements in a project | 5 |
| 3.9 | AA 4 | Produce a project which implements functional requirements | 7 |
| 3.10 | AA 5 | Apply results of research to accomplish a specific task | 7 |
| 3.11 | KU 7 | Show understanding of code and design used in the project | 5 |
| 3.12 | KU 8 | Test the solution effectively | 5 |
| 3.13 | KU 9 | Record and present test results | 5 |
| 4.1 | SE 2 | Evaluate both self and the resulting product | 10 |
|  | **Total** |  | **100** |

## **Notes**

1. The deadline for the assignment is on 25th May 2020.
2. Following assignment submission, the lecturer will hold submission reviews. Students will be expected to explain their code. The lecturer may decide not to award some or all marks if not satisfied that the work presented is the student’s own.
3. Milestone submissions and the final assignments are to be submitted electronically on Moodle. No hard copies are to be submitted.

## **Section A: Project Management**

1. Submit progress reports as specified in the table below. For milestone 3, you are to deliver the following:
   1. **Computer Vision:** 1 functional requirement, 1 user input, drawing/plotting on image
   2. **Augmented Reality:** 1 Functionality requirement, 2 Interaction event,Marker or Geolocation base marker
   3. **Web Scraping:** Database script

|  |  |  |  |
| --- | --- | --- | --- |
| **Milestone** | **Task** | **Date** | **Deliverable** |
| 1 | Proposal | 3rd April 2020 | Section B |
| 2 | Design | 20th April 2020 | Section C |
| 3 | Partial Implementation | 4th May 2020 | Choice specific (refer to details above) |
| 4 | Assignment Submission | 25th May 2020 | All sections |

|  |  |  |
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| **Marks Breakdown** | **Max** | **Actual** |
| Student abides by milestone submission schedule | 5 |  |
| **TOTAL (KU4)** | **5** |  |

## **Section B: Proposal**

1. Fill in the proposal document attached as an appendix to the assignment brief.

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| **Marks Breakdown** | **Max** | **Actual** |
| Proposal filled in properly | 7 |  |
| **TOTAL (AA1)** | **7** |  |

1. Requirements

|  |  |  |
| --- | --- | --- |
| **Marks Breakdown** | **Max** | **Actual** |
| Correct functional requirements provided | 5 |  |
| Correct non-functional requirements provided | 2 |  |
| **TOTAL (AA2)** | **7** |  |

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| --- | --- | --- |
| **Marks Breakdown** | **Max** | **Actual** |
| The idea proposed is relevant to the theme selected | 2 |  |
| The functional requirements relate well to each other, and to the overall idea | 3 |  |
| **TOTAL (KU3)** | **5** |  |

## **Section C: Design**

1. Choice Specific Question:
   1. **Computer Vision:** Createa flowchart for the main workflow of your application
   2. **Augmented Reality:** Createa flowchart for the workflow of your AR web Application
   3. **Web Scraping:** Create a class diagram for your application

|  |  |  |
| --- | --- | --- |
| **Marks Breakdown (Web Scraping)** | **Max** | **Actual** |
| Correct class diagram notation is used (classes with three compartments, inheritance arrows, modifiers, etc.) | 2 |  |
| All classes, and the appropriate relationships between them are included (do not show the Program class). | 3 |  |
| **TOTAL (KU1)** | **5** |  |

|  |  |  |
| --- | --- | --- |
| **Marks Breakdown (Augmented Reality)** | **Max** | **Actual** |
| Correct flowchart notation is used | 2 |  |
| All major steps of the workflow are included in correct sequence and control flow | 3 |  |
| **TOTAL (KU1)** | **5** |  |

|  |  |  |
| --- | --- | --- |
| **Marks Breakdown (Computer Vision)** | **Max** | **Actual** |
| Correct flowchart notation is used | 2 |  |
| All major steps of the workflow are included in correct sequence and control flow | 3 |  |
| **TOTAL (KU1)** | **5** |  |

## **Section D: Implementation**

1. The submitted project complies with the proposal as specified in Section B.1.

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| **Marks Breakdown** | **Max** | **Actual** |
| The submitted project complies with the proposal as specified in Section A Task 1 | 10 |  |
| **TOTAL (SE1)** | **10** |  |

1. The submitted project complies with the proposal as specified in Section B.2

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| **Marks Breakdown** | **Max** | **Actual** |
| Functional requirements implemented as proposed | 7 |  |
| **TOTAL (AA4)** | **7** |  |

|  |  |  |
| --- | --- | --- |
| **Marks Breakdown** | **Max** | **Actual** |
| Non-functional requirements implemented as proposed | 5 |  |
| **TOTAL (KU6)** | **5** |  |

1. Deliver a quality application.

|  |  |  |
| --- | --- | --- |
| **Marks Breakdown** | **Max** | **Actual** |
| Deliverable that meets minimum requirements 0 - 2 marks  Deliverable that exceeds minimum requirements 3 – 5 marks  Deliverable that amply exceeds minimum requirements 6 – 7 marks | 7 |  |
| **TOTAL (AA3)** | **7** |  |

1. Research and implement a technology that goes beyond those outlined in the theme:

|  |  |  |
| --- | --- | --- |
| **Marks Breakdown** | **Max** | **Actual** |
| Decent research carried out. Imperfect implementation 0 - 2 marks  Substantial research or excellent implementation 3 – 5 marks  Substantial research and excellent implementation 6 – 7 marks | 7 |  |
| **TOTAL (AA5)** | **7** |  |

## **Section E: Testing**

1. Produce an IPO chart with a minimum of 10 test cases. Ensure that the test cases cover valid, invalid and extreme inputs.

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| **Marks Breakdown** | **Max** | **Actual** |
| Input, expected output, actual output properly filled | 5 |  |
| **TOTAL (KU8)** | **5** |  |

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| **Marks Breakdown** | **Max** | **Actual** |
| Result, corrective action recorded properly | 5 |  |
| **TOTAL (KU9)** | **5** |  |

## **Section F: Review and Evaluation**

1. Attend review, explain code, and answer questions in a satisfactory manner.
2. In the eventuality that regular lessons do not resume prior to the assignment deadline, KU2, KU7, and KU5 will be assessed through a demonstration video prepared by the student. Your lecturer will provide further details, if applicable, in due time.

|  |  |  |
| --- | --- | --- |
| **Marks Breakdown** | **Max** | **Actual** |
| Student is prepared for the review; explains functionality in a concise and knowledgeable manner. | 5 |  |
| **TOTAL (KU2)** | **5** |  |

|  |  |  |
| --- | --- | --- |
| **Marks Breakdown** | **Max** | **Actual** |
| Student answers questions in a satisfactory manner. | 5 |  |
| **TOTAL (KU7)** | **5** |  |

|  |  |  |
| --- | --- | --- |
| **Marks Breakdown** | **Max** | **Actual** |
| No errors (logical, runtime) during demo | 5 |  |
| **TOTAL (KU5)** | **5** |  |

1. Evaluate your work by identifying
   1. 3 technical strengths and 2 technical weaknesses
   2. 3 non-technical strengths and 2 non-technical weaknesses

|  |  |  |
| --- | --- | --- |
| **Marks Breakdown** | **Max** | **Actual** |
| 3 technical strengths | 3 |  |
| 2 technical weaknesses | 2 |  |
| 3 non-technical strengths | 3 |  |
| 2 non-technical weaknesses | 2 |  |
| **TOTAL (SE2)** | **10** |  |

**Appendix 1: Proposal**

**Software/Multimedia Project 2019-2020**

**Advanced Diploma Year 2**

**Project Proposal**

**Name:** Savio Cauchi **Group:** GZ-ITS-4.2A

**Date Submitted:** 04/04/2020

The aim of this document is presenting your idea of a project and listing the requirements that the system needs to have. The lecturer will in turn give you feedback and discuss with you in case any changes are necessary. **Kindly keep with the proposal deadline as specified by your lecturer.**

From the 3 options listed below, you are to choose **only 1**. Depending on the option of your choice, you then have to create a project by strictly abiding with the specifications pertaining to that option.

**Option 1: Computer Vision** (recommended as a choice for Multimedia Software Development students)

If you choose this stream you are expected to use the Python programming language together with available libraries to develop an application which makes use of Computer Vision.

Your application is to have, at least, the following, and these requirements must make sense in the context in which they are used:

* usage of 2 widely-used popular libraries such as NumPy, Dlib, PIL/Pillow, OpenCV, YOLO, etc…
* 2 Python scripts
* 5 different types of image processing tasks (e.g. cropping, blurring, edge detection, etc…)
* 1 instance of colour space conversion
* 2 instances of drawing/plotting on images
* 3 functions
* face detection or object recognition
* OCR, face-landmark recognition and usage, or a difficulty-wise equivalent technology \*1
* 1 instance of keyboard user input
* 1 instance of mouse user input
* writing to a text file \*2

\*1 – Choose between OCR, face-landmark recognition and usage (it is not enough to simply detect landmarks, but the landmarks have to be used and interpreted, for e.g. checking if the eyes are open). Else, you can use another technology which is equivalent to these in terms of difficulty. For the latter option, discuss with your lecturer.

\*2 – Any type of writing to text file will do, for example saving the state of an application, or creating an activity log file.

**Option 2: Augmented Reality** (recommended as a choice for Multimedia Software Development students)

If you choose this stream you are expected to use HTMLS, CSS, AR.JS and A-Frame libraries to develop an application which makes use of AR based on custom made markers and or location based marker. Your application is to have, at least, the following requirements which must make sense in the context in which they are used:

|  |
| --- |
| * Use of AR.js and A-Frame not excluding other related libraries * HTML5 and JavaScript (events.js) for AR interactivity * At least3 Different objects (3D, 2D, text or Geolocation) * At least 1 animated object * Use custom markers and or location based markers * Use of Multiple markers |

You can use another technologies to develop AR and 3D object, however, the application has to be web based and which must make sense in the context in which they are used:

**Option 3: Web Scraping** (recommended as a choice for Software Development students)

If you choose this stream, you are expected to use the Selenium library to develop either a *data augmentation* project or a *cause and effect* project.

A *data augmentation project* would extract information from different sources, transform it to a standardised format, and present it to the user in an interactive manner. A typical data augmentation project would be a restaurant search engine. A user would be able to specify what she wants to eat on a specific date and at a preferred location. The application would check which restaurants based at the specified location have that item on their menu and are open at that specific date and time.

Your application is to satisfy the following minimum requirements:

* use of Selenium library
* windows or web interface
* at least 8 source web pages
* at least 5 transformations (e.g, standardising restaurant menu structure)
* at least 5 filters for advanced search (e.g., date, location, menu item)
* persistent storage (using a database) of at least 5 classes
* implementation of caching with cache expiry

A *cause and effect* project would extract information from a source website, and then use that information to initiate an interaction with a destination website. A typical *cause and effect* project would be a bot that retrieves betting tips from a source website, and then uses those tips to place bets on another website.

Your application is to satisfy the following minimum requirements:

* use of Selenium library
* at least 1 source web page
* at least 1 destination web page
* at least 5 interactions (e.g., login, placing a bet)
* at least 5 transformations (e.g., team names might vary among websites)
* persistent storage (using a database) of at least 5 classes
* user should be able to change settings and view an activity log.

For both of the project types, these requirements must make sense in the context in which they are used. The proposals should be comparative in scope to the examples provided.

***Proposal Document***

1. Select your choice from the options below:

🞏 Option 1 (Computer Vision)

Option 2 (Augmented Reality)

🞏 Option 3 (Web Scraping)

1. Write the title only of the scenario that you are going to implement

Vehicles AR

***AA1 – Produce a requirements analysis (7 marks)***

1. Write a short paragraph outlining the high-level **objectives** of your application. As part of your explanation, mention the **typical user/s** of your application.

(**2 marks** – 1 mark for objectives, 1 mark for typical users)

This app will show a brief description and a direct look about vehicles. It will have 3D/2D images of different vehicles and when the user clicks on an image, it will show a brief of information about the specific vehicle or perhaps changing a vehicle’s colour. The user also has the ability to enlarge or shrink the images when hovered on giving an in depth look to the image. This app is targeting specific types of users that are interested or study in vehicle machinery.

1. Fill in only the part pertaining to the option you chose.

(**5 marks** – deduct 1 mark for every invalid answer)

**Option 1: Computer Vision**

Libraries

Library 1: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Used for: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Library 2: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Used for: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Scripts

Script 1: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Used for: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Script 2: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Used for: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Script 3: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Used for: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Image Processing Tasks

N.B. Out of 5, only 2 need to be known at this point

Manipulation 1: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Used for: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Manipulation 2: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Used for: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Drawing/Plotting on images

Usage 1: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Usage 2: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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User Input

Keyboard input used for:

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Mouse input used for:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Face Detection or Object Recognition

Please specify: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

OCR, face-landmark recognition and usage, or equivalent technology

Please specify and explain:

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Writing to a text file

Please explain what you are going to write in the text file:

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**Option 2: Augmented Reality**

Libraries

Library 1: AR.js

Used for: The ability to run an AR app on the browser with no installation including various marker features

Library 2: A-Frame

Used for: Creating 3D, animations and WebVR scenes

AR Development (AR.JS – A-Frame)

Script 1: Main Script

Used for: The Main Web script

Events: Click and Mouse Over Events

Used for: When clicking on the 3D/2D image, a text of information will be displayed on the screen or change the colour of an image. When hovering over an image, it will be enlarged and shrunk when not in focus

Functions: Change colour, Rotate and Enlarge/Shrink Functions

Used for: Two of the images are going to be rotating by default. When the third image is clicked, the image will change colour. When the images are hovered over then they will be enlarged and shrunk when the image is not in focus.

Markers

Custom Marker 1: Car Maker

Used for: Display a 3D/2D car image

Custom Marker 2: Car Marker

Used for: Display a 3D car image

Custom Marker 3 Motorcycle Marker

Used for: Display a 3D/2D motorcycle image

Custom Marker 4: Van Marker

Used for: Display a 3D/2D van image

2D/3D, Text images

Used for: One of the Car images will have labeled parts as text. Three of the images will be enlarged once hovered on and shrunk when not in focus. The Car image and the Motorcycle image will be rotating 360o. The Van image will change colour once the image has been clicked. The text will show up once the Car or the Motorcycle images have been clicked showing a brief description about their machinery and changing the colour of the Van image when clicked on.

JS Events for Interaction

Used for: The On Click event will be used on the car image and on the motorcycle image to display information as text. It will also be used to change the color of the van image. The Mouse Over event will be used on all of the images to enlarge/shrink the size.

**Option 3: Web Scraping**

Fill in either A or B

1. **Data Augmentation Web Scraping Project**

Source Web Pages

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
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3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
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Transformations

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
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4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Filters

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
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4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Caching and Persistence Description

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Persistent Storage Classes

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Caching and Cache Expiry Description

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. **Cause and Effect Web Scraping Project**

Web Pages

Source: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Destination: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Transformations

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Persistent Storage Classes

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Settings and Activity Log Description

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***AA2 – Produce a planning document (7 marks)***

1. Mention and briefly explain **5 functional** requirements that your application will have.

|  |  |  |
| --- | --- | --- |
|  | **Mention Requirement** | **Explain Requirement** |
| 1 | Change Colour | Changing the colour of a vehicle image |
| 2 | Rotation | Setting 2 images to rotate 360o for an indefinite time |
| 3 | Information Pop Up | Clicking on an image will pop up information about the image |
| 4 | Scale Changing | The ability to enlarge and shrink the image size by hovering over it |
| 5 | Virtual viewing car parts | Having a clear view of a 3D car with labelled parts providing the user with direct information |

1. Mention and briefly explain **2 non-functional** requirements that your application will have.

|  |  |  |
| --- | --- | --- |
|  | **Mention Requirement** | **Explain Requirement** |
| 1 | Reliability | The information about the machinery is found reliable and trust worthy from the web |
| 2 | Easy to use | Providing simple and descriptive features, the app is very easy and straightforward to use |

For lecturer’s use only:

□ Proposal accepted without modification

□ Proposal accepted with modification request Deadline: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

□ Proposal rejected Deadline: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Lecturer’s comments:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Lecturer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Lecturer’s Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**NOTE THAT THESE MARKS ARE NOT FINAL AND CAN CHANGE ACCORDING TO IMPLEMENTATION.**

|  |  |  |
| --- | --- | --- |
| **Criteria** | **marks achieved** | **out of** |
| **AA1** - Produce a requirements analysis |  | *7* |
| **AA2** – Produce a planning document |  | *7* |
| **KU3** – Choose an idea that is relevant to the theme |  | *5* |

*------------------------------------------------End of Proposal Document---------------------------------------------------*

**Section C: Design**

3D Car Marker

3D/2D Markers

Start

**False**

The Image is shrunk as the mouse is not in focus with the image

Detecting Markers

**True**

**True**

Brief Information is displayed about the machinery

The 3D image is shown and each car part is labelled to give the user a direct understanding about the vehicle’s machinery

The Image’s colour has been changed

The Image is clicked

Enlarges as the mouse is in focus with the image

The Car, Motorcycle and the Van

**Section D: Implementation**

**References on the Project:**

***3D Models;***

<https://aframe.io/docs/1.0.0/introduction/models.html#sidebar>

<https://medium.com/@akashkuttappa/using-3d-models-with-ar-js-and-a-frame-84d462efe498>

<https://aframe.io/docs/1.0.0/components/gltf-model.html>

<https://sketchfab.com/3d-models/low-poly-bmw-i8-bcb724f1194b46a58ab9bba32373da01>

<https://poly.google.com/view/dse64pqMKAR>

<https://poly.google.com/view/4JXBw71WKbx>

***Custom Markers;***

<https://aframe.io/blog/arjs/>

<https://medium.com/arjs/how-to-create-your-own-marker-44becbec1105>

<https://jeromeetienne.github.io/AR.js/three.js/examples/marker-training/examples/generator.html>

***JavaScript Events and Functions;***

<https://github.com/jeromeetienne/AR.js/blob/master/aframe/examples/marker-events.html>

<https://medium.com/chialab-open-source/how-to-handle-click-events-on-ar-js-58fcacb77c4>

<https://ar-js-org.github.io/AR.js-Docs/ui-events/>

<https://aframe.io/docs/1.0.0/introduction/interactions-and-controllers.html>

**Section E: Testing**

|  |  |
| --- | --- |
| Test Case ID: | 1 |
| Test Title (and data if applicable): | Hovering over the Car Model enlarges it |
| Expected Result: | Car Model should be enlarged |
| Actual Result: | Car Model was enlarged |
| Passed: Yes/No | Yes |

|  |  |
| --- | --- |
| Test Case ID: | 2 |
| Test Title (and data if applicable): | Hovering out of the Car Model shrinks it |
| Expected Result: | Car Model should be shrunk |
| Actual Result: | Car Model was shrunk |
| Passed: Yes/No | Yes |

|  |  |
| --- | --- |
| Test Case ID: | 3 |
| Test Title (and data if applicable): | Clicking the Car Model will show a brief description about its machinery |
| Expected Result: | A description should be shown |
| Actual Result: | A description was shown |
| Passed: Yes/No | Yes |

|  |  |
| --- | --- |
| Test Case ID: | 4 |
| Test Title (and data if applicable): | Hovering over the Motorcycle Model enlarges it |
| Expected Result: | Motorcycle Model should be enlarged |
| Actual Result: | Motorcycle Model was enlarged |
| Passed: Yes/No | Yes |

|  |  |
| --- | --- |
| Test Case ID: | 5 |
| Test Title (and data if applicable): | Hovering out of the Motorcycle Model shrinks it |
| Expected Result: | Motorcycle Model should be shrunk |
| Actual Result: | Motorcycle Model was shrunk |
| Passed: Yes/No | Yes |

|  |  |
| --- | --- |
| Test Case ID: | 6 |
| Test Title (and data if applicable): | Clicking the Motorcycle Model will show a brief description about its machinery |
| Expected Result: | A description should be shown |
| Actual Result: | A description was shown |
| Passed: Yes/No | Yes |

|  |  |
| --- | --- |
| Test Case ID: | 7 |
| Test Title (and data if applicable): | Hovering over the Van Model enlarges it |
| Expected Result: | Van Model should be enlarged |
| Actual Result: | Van Model was enlarged |
| Passed: Yes/No | Yes |

|  |  |
| --- | --- |
| Test Case ID: | 8 |
| Test Title (and data if applicable): | Hovering out of the Van Model shrinks it |
| Expected Result: | Car Model should be shrunk |
| Actual Result: | Car Model was shrunk |
| Passed: Yes/No | Yes |

|  |  |
| --- | --- |
| Test Case ID: | 9 |
| Test Title (and data if applicable): | Clicking the Van Model will change its colour |
| Expected Result: | Van Model’s colour should be changed |
| Actual Result: | Van Model’s colour was not changed |
| Passed: Yes/No | No |

|  |  |
| --- | --- |
| Test Case ID: | 10 |
| Test Title (and data if applicable): | Shows text around the 3D Car model |
| Expected Result: | Text should be shown around the 3D Car Model |
| Actual Result: | Text was be shown around the 3D Car Model |
| Passed: Yes/No | Yes |

The corrective action would be that the Van Model’s colour will change when the Van Model is clicked

**Section F: Review and Evaluation**

**3 Technical Strengths:**

3D Models load well with the marker

Click and hover events work successfully

Texts shown around the Big Car Model

**2 Technical Weakness:**

Clicking the Van Model does not change the colour of the model

Can’t remove the text when clicked on the first two models

**3 Non-Technical Strengths:**

Information about the machinery is reliable

App is easy to use

Shows a direct visual view of a vehicle

**2 Non-Technical Weakness:**

Only three vehicles showed in the app

Vehicle Models not visually realistic