

Candidate 1 evidence

Description of Problem

I intend to develop a quiz based on well-known historical events. The quiz will have three levels of difficulty so that the user can select a level on either their historical knowledge or how much of a challenge they want to set themselves. I intend to include the following features: login facilities, help screens, each level of difficulty will have a quiz selected at random, each quiz will have multiple choice questions and a leader board that can be sorted.

The end-users of my quiz will specifically be S1-S6 students who study history at school but also anybody who is interested in history and wants to test their knowledge.

My project meets the advanced higher computing requirements because it will have a user interface suitable for S1-S6 students which will be easy to use and will validate all inputs. My project will interface with stored data within a database for the questions (using SQL) and also with a text file to store the login facilities (these will be processed using an array of records). My project will also use a sort algorithm to arrange the details leader board details.

Scope

The scope of my project will include:

1. A completed design with pseudocode, data dictionary, query design and wireframes showing the intended interface for the quiz
2. A working quiz and a database with multiple choice quiz questions
3. Completed test plan with descriptions of a test persona, test cases and expected outputs
4. The results of final testing
5. An evaluation report

Constraints

There are a number of technical, economic and time constraints that will apply to this development.

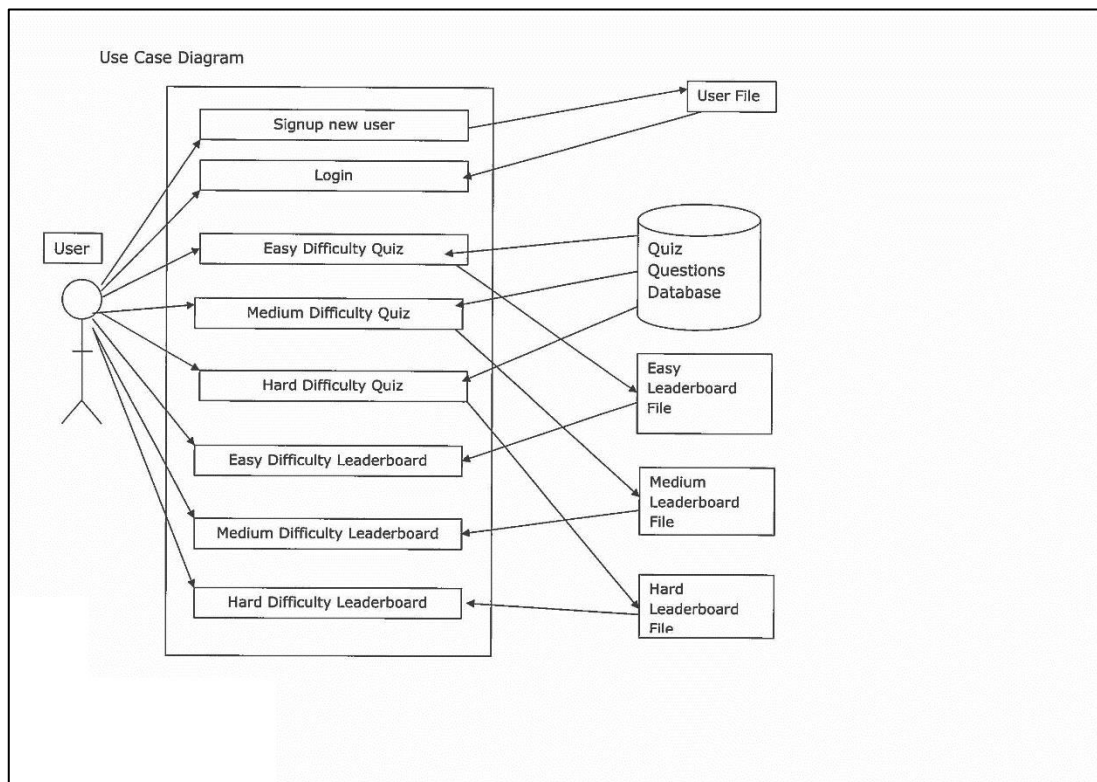
1. I will use LiveCode version 9 to create the quiz because I have several years' experience using this language
2. The final solution will run on the Windows systems with ODBC to access my quiz database.
3. Microsoft Access will be used to store my quiz questions
4. There will be no costs involved in the development of my project because I am using software that is fully licensed and readily available in school
5. I will ensure that my project is completed by the deadline of 29th March as it will need to be delivered to SQA for marking. The submission deadline is 4th April 2019.

Boundaries

My working solution will contain:

1. A system to allow users to sign up with a new username and password combination
 - The user cannot have a password of less than 4 characters
2. A system to allow users to log in with their unique username and password
3. All user input must be validated
4. Three quizzes of different levels of Easy, Medium and Hard will be available
5. Each quiz will contain 10 questions that will be presented to the user in a random order
 - Users will not be able to choose how many questions per run through of the quiz they do
 - Users will only be able to choose their difficulty level, they will not be able to choose which questions they are asked
6. The score achieved by each user will be stored in the leader board file corresponding to the correct difficulty level
7. A leader board that will display the top 10 scores and usernames for each difficulty level
 - The leader board for each level will be sorted in descending order of score

UML Use Case Diagram



Requirements Specification

For my system to be able to fulfil its requirements, it must meet several criteria:

Login System Requirements

Users of my system will be able to create a unique username-password combination to access the quiz. The login functionality will include:

1. The Login page is the first screen that users will see, and will allow the user to enter
 - a) A valid username and
 - b) A valid password
2. The user will then press the "Login" button, which will check that the username and password they have entered is valid by:
 - a) Checking that neither field is blank
 - b) Checking that the password entered contains more than 4 characters
 - c) Importing stored usernames and passwords from the login file
 - d) Checking that the username and password combination exists in the login file
3. If the user passes this validation:
 - a) The username will be stored in a variable to be accessed throughout the program
 - b) The user will be directed to the Home page to select one of three levels of difficulty options for the quiz

- | | |
|---------------------|---|
| Login screen inputs | <ul style="list-style-type: none"> ○ Users will login by entering their: <ul style="list-style-type: none"> - username - password ○ Users will be able to add a new user by inputting a: <ul style="list-style-type: none"> - username - password ○ User button click to: <ul style="list-style-type: none"> - login to the quiz system - sign up as a new user |
|---------------------|---|

Logout System Requirements

Users of my system will be able to log out of my system from the Home page. The logout functionality will include:

1. Clearing the variable that stores the username of the currently logged in user
2. The user is brought back to the Login page
3. A message will be displayed telling the user that they have logged out

- | | |
|--------------------|---|
| Home screen inputs | <ul style="list-style-type: none"> ○ User button click to: <ul style="list-style-type: none"> - indicate which of the three levels the user wants to play - logout of the quiz system |
|--------------------|---|

- | | |
|---------------------|--|
| Home screen outputs | <ul style="list-style-type: none"> ○ Message displayed when the user logs out |
|---------------------|--|

Quiz System Requirements

The users will begin the quiz by choosing a difficulty from the Home page from the choice of "Easy", "Medium" or "Hard", which will then take the user to the relevant Quiz page for that level of difficulty. They will then press the "Play" button to start the quiz. The quiz will provide the following functionality:

1. The username of the currently logged in user will be displayed at the top corner of the page
2. When clicked, the "Home" button will allow the user to return to the Home page
3. A "Clear" button will be provided to clear the output box between successive attempts
4. Once the "Play" button is pressed:
 - a) A list of 10 questions will be randomly selected
 - b) Each question will be displayed one at a time in an output field on the Quiz page
 - c) The list of 4 possible answers for each question will be displayed below the question in the same output field
 - d) A pop-up box will be used to allow the user to enter the number of their chosen answer

- e) The number entered will then be compared with the correct answer stored in the database
- f) If the answer is correct, a message stating that they're correct will be displayed and one will be added to their score
- g) If they're incorrect, then the score will remain the same and a message stating that they're incorrect will be displayed
- h) Once the quiz is finished, the score that the user achieved out of 10 will be displayed
- i) The username and score of the user will be added to the leader board file for the chosen level of difficulty

- Quiz screen inputs
- o User button click will be used to:
 - start the quiz
 - return to the Home screen
 - clear the leader board display area
 - o Users will type their answer to each question into the pop-up box that opens

- Quiz screen outputs
- o Username of the current user will be displayed
 - o Each question will be displayed along with the 4 possible answers
 - o Correct or incorrect message will be displayed
 - o The user's quiz score will be displayed

Leader Boards Requirements

The users will be able to view a leader board for each difficulty of the quiz "Easy", "Medium" and "Hard". The leader board functionality will include:

1. The username of the currently logged in user will be displayed in the top corner
2. A "Return" button will be provided to return to the Home page
3. A "Clear" button will be provided to clear the leader board display area between displays
4. When the "Display" button is pressed:
 - a) The contents of the file storing the scores for the user's chosen difficulty will be imported into the program and sorted in descending order
 - b) The top 10 scores will be displayed with the username of those who got them

- Leader board inputs
- o User button click will be used to:
 - display high scores and matching user names
 - clear leader board display array
 - return to the Home screen

- Leader board outputs
- o Username of the current user will be displayed
 - o Sorted score and matching username on the leader board

Project Plan

Here is my detailed project plan with list of tasks and time allocation.

Task	Sub Task	Duration	Start Date	Target Date
Analysis 6 days	Read requirements for AH project and create idea	1 day	23 rd Oct	23 rd Oct
	Write outline of project	0.5 day	24 th Oct	24 th Oct
	Create scope, boundaries and constraints	0.5 day	24 th Oct	24 th Oct
	Create UML use case diagram	1 day	25 th Oct	25 th Oct
	Create user requirements description	1 day	26 th Oct	26 th Oct
	Create functional requirements	1 day	30 th Oct	30 th Oct
	Project plan	1 day	31 st Oct	31 st Oct
Design 14 days	Interface design - Create wireframes	5 days	1 st Nov	8 th Nov
	Design Structure Diagrams	2 days	9 th Nov	11 th Nov
	Create Pseudocode	5 days	12 th Nov	19 th Nov
	Design SQL	2 days	20 th Nov	21 st Nov
Implementation 30 days	Create User Interface	5 days	28 th Nov	5 th Dec
	Create Program Listing	10 days	6 th Dec	20 st Dec
	Create DB structure	5 days	5 th Jan	12 th Jan
	Create File Structure	5 days	13 th Jan	19 st Jan

	Write description of new skills	0.5 day	19 th Jan	19 th Jan
	Log of ongoing testing	Ongoing through implementation	28 th Nov	20 th Jan
Testing 8 days	Test plan	3 days	21 nd Jan	23 th Jan
	Carry out testing	3 days	26 th Jan	28 th Jan
	Describe testing encountered problems	2 days	1 st Feb	2 nd Feb
Evaluation 2 days	Write evaluation	2 days	8 nd Feb	9 th Feb
Finalise evidence 5 days	Finalise analysis	1 day	15 th Feb	15 th Feb
	Finalise design	1 day	16 th Feb	16 th Feb
	Finalise implementation	1 day	17 th Feb	17 th Feb
	Finalise testing and evaluation	1 day	18 th Feb	18 th Feb
	Submit	1 day	19 th Feb	19 th Feb

Resources Required

The resources I will need at each stage of the development are listed below.

Analysis	<ul style="list-style-type: none">• Microsoft Office Word 2007• Google Chrome• Gantt project 2.7
Design	<ul style="list-style-type: none">• Microsoft Office Word 2007• Google Chrome
Implementation	<ul style="list-style-type: none">• Microsoft Office Word 2007 with ODBC• Livecode 9.0.0• Microsoft Office Access 2007 (connection will be achieved used ODBC access)• Notepad
Final Testing	<ul style="list-style-type: none">• Microsoft Office Word 2007• Livecode 9.0.0• Microsoft Office Access 2007
Evaluation	<ul style="list-style-type: none">• Microsoft Office Word 2007

Candidate 2 evidence

Description of the Problem

Project idea - Cosmetic Details Website

End users of the proposed site will be predominantly females ages 15 - 40 who have a keen interest in make-up. In the website, users will be able to view makeup products from selected brands and search for specific products.

The project meets the requirements of AH computing as:

- It will have an appropriate interface with all user inputs being validated
- Details of customers and products will be stored in a SQL database
- It will make use of HTML form processing using PHP
- SQL operations will be used to insert details and perform searches
- Web pages in the site will be styled using external CSS
- When customer login to the site, PHP session variables will be used to store their data across multiple pages of the site
- The website will adapt to different screen sizes using CSS media queries

Scope, Boundaries and Constraints

Scope

During the development of the website I will produce:

- Requirements specification
- Detailed design
- Fully working implementation
- Comprehensive test plan with a summary of the final testing

Boundaries

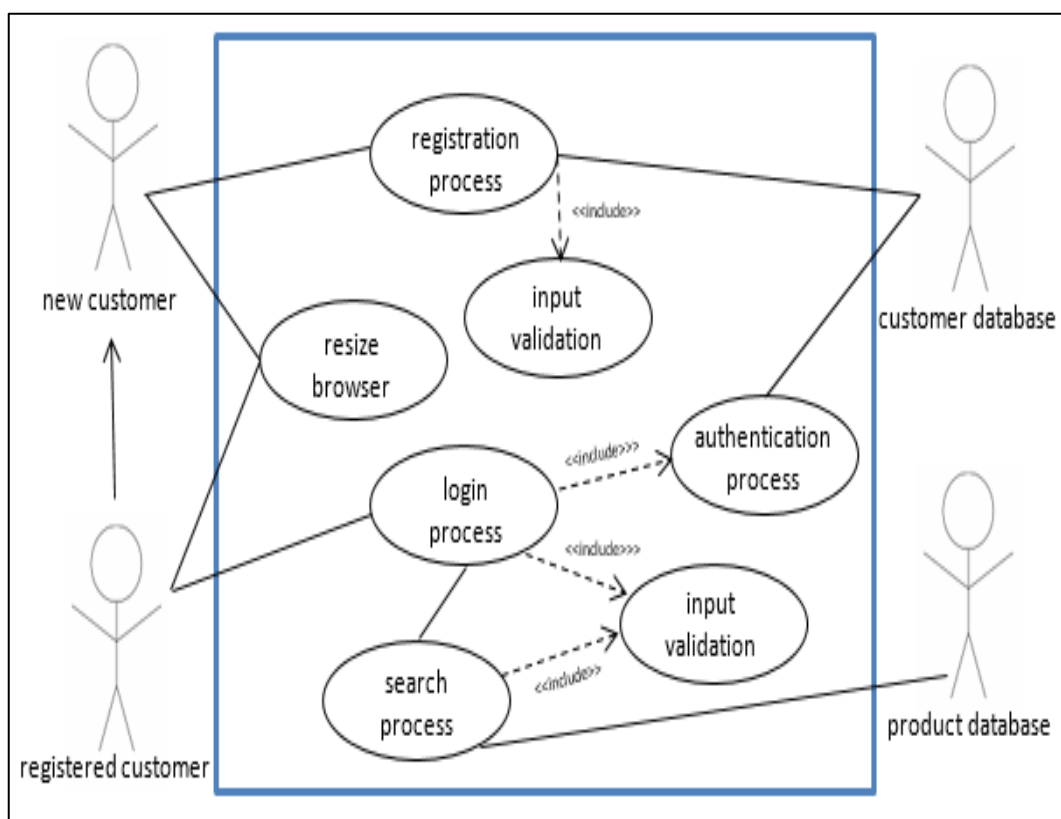
Due to the limited time available to develop this website, several restrictions are needed.

- The registration process will be used to create new customer accounts and input validation will be applied to all details entered to the website.
- The website will be made responsive to a different screen size by altering the size of the browser window. It doesn't need to be tested on different devices.
- Customers will navigate the site using a horizontal navigation bar.

Constraints

- Time: I have 6 months to complete my project.
- Technical: I will be learning PHP during the AH course.
- Costs: All the software I intend to use is open-source which means there is no cost implication for the school.
- Legal: I must comply with the Copyright, Design and Patents Act and ensure that the GDPR Regulations are met.

UML Case Diagram



Requirements Specification

Purpose of the site: The purpose of the website is for users to be able to view cosmetics from selected brands when they register and log into the site.

Functional Requirements

- The website will be able to store the details of customers and products in an external database
- The website will be able to validate all user inputs to the website
- It will be easy to navigate with a fully functioning navigation bar
- Check that users are registered when they login to the website
- Pages of the website will be formatted using an external style sheet
- Users will be able to search for products by brand or by product name by connecting to the database and executing SQL queries
- Display formatted search results (details of each product found, including an image of these products)
- Session variables will be used to store a customer's login details across pages of the website
- Responsive layout that changes depending on the screen size being used

End-User Requirements

Through the analysis of my user surveys, I have come up with a list of requirements that were the most common answers amongst the people answering my surveys:

- Palatable colour scheme (e.g. light, complimentary colours)
- Easy to navigate
- Clutter free and good use of space
- Easy to use search facility to search for products by name and/or by brand

Because of the user surveys, I will ensure to include these requirements when implementing the website to create the best user experience I can.

Inputs and Outputs

For users: Email Addresses
 First Name
 Last name
 Home address

Telephone Number

Username

Password

Search criteria

For Website:	Processes:	Validation of all customer inputs Open and close connection with database Save customer details in database Authenticate customer login Execute SQL queries Search for products and format query results Use of session variables to preserve user login data
	Outputs:	Validation error messages Personalised message using session variables on search page Search results showing product details, including an image
	Inputs:	Populating the website with details of makeup products Login query results Registration query results Search criteria and search query results Size of the browser window

Project Plan

Resources Required

During the development, I will need access to a computer with the following software resources:

- Text editor
- Browser
- Web server tools

Task	Hours	Analysis	Design	Implementation	Testing	Final
Analysis (16 hours)						
Read requirements for the project and constraints						
Write outline of Project						
Design, boundaries and constraints						
UML Use Case Diagram						
Requirements, Spec - and more						
Requirements, Spec - Functionality						
Description of implemented features						
Project planning						
Design (16 hours)						
Interface design - submodules						
Structure diagram (modules)						
Realiscode (interface code)						
Database design						
Implementation (16 hours)						
Database structure						
HTML pages						
Navigation bar (HTML)						
Page (implementation process)						
Page design process						
Section articles						
Page (implementation)						
Media query						
Validation (implementation process)						
Developing testing						
Description of necessary skills						
Testing (16 hours)						
Test plan (requirements)						
Process and test cases						
Final testing						
Test evidence						
Evaluation (16 hours)						
Process for response						
Self-study						
Reflection						

For clarity, I have repeated the tasks to be completed at each stage of the project's development.

Tasks	Est Duration (hours)	Target Date
Analysis Read requirements for AH project and create idea Write outline of project Scope, boundaries and constraints UML Use Case diagram Requirements specification - end-users Requirements specifications - functionality Description of inputs and output Project planning	6	6 th October 2018
Design Interface design - wireframes Structure diagram - website Pseudocode (server-side tasks) Database design	6	2 nd November 2018
Implementation Database structure HTML pages Navigation bar (CSS) PHP (registration page) PHP (login process) Session variables PHP (search process) Media query Validation (registration process) Ongoing testing Description of research/new skills acquired	24	15 th February 2019
Testing Test plan (requirements) Persona and test cases Final testing Test evidence	10	8 th March 2019
Evaluation Fitness for purpose Maintainability Robustness	2	15 th March 2019