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| **Course** | **TNABT Software Engineering** |
| **Unit Code** | **ICTPRG435** |
| **Unit Title** | **Write scripts for software appliations** |
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| **Assessment Task Title** | **Assessment 2 – Skill Tasks** |
| **Assessment Type** | **Practical** |

## Instructions:

The assessment provides the opportunity for you to demonstrate the following skills and knowledge to your assessor:

* Identify software requirements
* Design algorithms
* Design, write and implement scripts
* Test and debug scripts
* Create internal documentation
* Use development environment

This assessment is to be completed in your own time. Time may also be made available for completing the assessment during class sessions.

You are required to enter your responses in the spaces provided in this assessment sheet.

To achieve a ‘satisfactory’ result for this assessment you must complete all tasks and be deemed competent in all tasks by your assessor.

In the event that you receive an unsatisfactory result, you will be required to review feedback from your assessor and then resubmit the assessment after making required corrections. You will have one opportunity for resubmission.

If your second assessment attempt is ‘not yet satisfactory’ you must contact your teacher or assessor to discuss how to proceed.

## Documents to Submit:

Use this document to provide your responses to all tasks. Ensure that you enter your Student ID and Full Name in the space provided overleaf. This document must be uploaded by the due date to the drop box for ICTPRG435 Assessment 2 on VU Collaborate.

* Completed this assessment document - Assessment 2 – Skills tasks
* Panopto video of debug process
* Zipped up remote GitHub repository containing .HTML .CSS .JS files (.zip)

## Assessment Task:

All responses must be your own work.

**Assessment scenario – Abstract Art Competition**

* You are to create a one-page website that allows a user to draw a piece of abstract art and to submit the art for evaluation as part of an online competition.
* You will use the HTML canvas element to enable the functionality required to create the abstract art. There are some minimum functionality requirements but you also have a large amount of creative reign to structure things the way you want.
* When the art is completed a user will be able to save the art as an image file and upload it along with some general user data, using an online submission form.

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| **Script Requirements**  Your script will include the following: | |
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| User must be able to select the following canvas shapes at a minimum, lines, circles and, quadrilaterals (square and rectangle) |  |
| User must be able to specify the size, position, a range of outline colors and, a range of fill colors for all selected shapes |  |
| Differing shapes, range of colors, shadows, gradients, stroke pattern, rotations, scaling, animations or, any other Canvas related property or method are allowed but not mandatory |  |
| There must be functionality to clear the canvas and start over |  |
| Selection, modification and application of art content can be via any method/s such as, but not limited to, buttons, drop-down menus, radio buttons, sliders, color palette, drag n drop and, other mouse actions. |  |
| Canvas will be 400px X 400px in size with a black border and white background. It will be positioned appropriately relative to drawing controls |  |
| The page is to include a registration form that includes username, email address, password (minimum 8 characters), confirm password, phone number, submit form button and, attach image button. Form should be uploaded for processing to process.php.  Form content must be validated such that data is not uploaded if any field is filled out with an incorrect format or left blank. Note that this is a simulation only as there is no server available to receive and respond to the upload. |  |
| The final look of the page will be formatted by other staff but your page must:   * contain a heading: Abstract Art Competition * Provide very brief instructions on how to use the page including the submission form. * Have a neat presentation   Optionally, you might like to use a template for the layout <https://www.w3schools.com/css/css_templates.asp> |  |
| The heading and instructions will be available in two different langages (eg. Spanish & English) selectable via buttons. The heading will have different colors depending on the language chossen *(Language differences for text on buttons, forms, radio buttons etc is optional)* |  |
| Handle any input from the user and carry out actions, without errors |  |
| Include embedded explanatory comments (#) in JavaScript to clarify the meaning of the code where needed. Include your name and date as comments at the top of the code and a brief description of what the code does. |  |
| Sequence, selection and iteration must be demonstrated within the script |  |
| No JavaScript modules, libraries or frameworks are to be used |  |
| Note that the artwork can be saved by right clicking on the canvas |  |

## **Student Name: Student ID Number:**

## Task 1.1 Identify and discuss script requirements

Discuss the script requirements above with your instructor who is acting as your work supervisor. This is your opportunity to ask any questions to ensure you fully understand the requirements. Provide brief notes or dot points of the discussion that show your attempts to clarify and understanding the script requirements. *Note that your instructor may work with you individually, in small groups or as one large group for this task*

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| *Enter brief notes or dot points of the discussion*  Choose colour palette which looks good  Use existing form  There is no provision for form contents to be saved as there is no backend to process .php  Only password matching check is mandatory  Is there a size restriction for the shapes to be drawn on the canvas? Like can it be beyond the canvas, or it must be within the canvas?  There is no need to clear each item drawn in the canvas, only requirement is to clear the entire canvas content. |

## Task 1.2 Identify and discuss script outcomes

Discuss the following software outcomes with your instructor who is acting as your supervisor. Complete the table rows by answering the questions.

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| **Script outcome discussion** |
| **Why would a user want to use the script?** |
| The script allows user to draw abstract art using the options provided and once drawing is complete, user can fill in the form and submit the art in the competition. |
| **What are the features and functions of the script? *What is it that the script does overall, what are its individual functions, how will a user navigate the script, what are the inputs, what are the outputs, are there any special features?*** |
| The main features of this script is that it will allow user to select different shapes to draw along with their coordinates on where to place the drawing, filling of colour in each shapes they draw and optionally choose gradient. There is a colour palette to help the user. Apart from this if the user wants to clear the drawing, they can select “Clear” button which will clear the drawing.  User can enter their details like name, email address, password to submit their entry**.** |
| **Appearance  *How will the user interface look? How will any outputs from the script look? Provide a picture of the user interface using*** [***https://app.diagrams.net/***](https://app.diagrams.net/) |
| *Graphical user interface, application  Description automatically generated* |
| **When is the script due for completion?** |
| **5th July 2022** |
| **What questions do you have about the script or the development process*?*** |
| Where will the form be submitted – ans: there is no server so it does not submit the details anywhere  How will the canvas art be sent in the form – ans: the user is expected to save the image and send it. For this image html element has been used. |

## Task 1.3 Algorithm Design

Produce a design of your intended JavaScript only using pseudo-code with explanatory comments. Use the script requirements to guide the design of your algorithm/s

Contact your instructor for constructive and corrective feedback when complete. Review the algorithm design based on the feedback and, provide brief notes or bullet points of the changes.

*Note that your instructor may choose to provide feedback individually, in small groups or as a large group.*

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| *Enter your pseudo code:*  *Get canvas element from html*  *Button draw click calls draw()*  *Button clearid – click calls clear()*  *Button English – click calls myLang(eButton)*  *Button Spanish – click calls myLang(sButton)*  *Button Submit – click calls checkForm()*  *// selected shape from drop down menu using set parameters*  *Function draw()*  *Switch(shape selection)*  *case: circle*  get start x     get start y     get radius     get arc(start angle and end angle)     draw circle  *case: rectangle*  get start x     get start y     get width      get height  if linearFill is selected  draw linear grid rectangle   else  draw rectangle with selected colour  case: square  get start x      get start y  get width       get height  if linearFill is selected  draw linear grid square   else  draw square with selected colour  case: line  get starting point of the line  get ending point of the line  draw line  *Define function clear ()*  *use clearrect function to clear the canvas*    *Define function language()*  *If English button selected*  *Change heading language to English*  *change heading colour to green*  *else if spanish button selected*  *change language to Spanish*  *change heading colour to red*  *define function for form validation*  *loop through all elements to check if they empty,*  *if empty, send alert to fill and try*  *get password & confirm password values*  *if password length is <8 give error alert*  *if password==confirm password*  *form validated*  *else if password! = confirm password*  *display password is not matched*  *Enter brief notes or bullet points of any changes made after supervisor review:* |
| *There was missing event for language selection which has since been added.*  *Added form validation, included checking of all fields being entered and upon submit to send the form.*  *It is also noted that there will be error displayed due to no process.php file.* |

## Task 1.4 Coding and internal documentation

Translate your pseudo code into a functional script using HTML, CSS and JavaScript adhering to the provided script requirements and outcomes as a guide.

* Include at the top of the javaScript the authors name, the date created, and an overview of the codes functionality.
* Provide explanatory comments within the script where required
* Structure code using the MDN Web Docs JavaScript guidelines   
  <https://developer.mozilla.org/en-US/docs/MDN/Guidelines/Code_guidelines/JavaScript>

Record the development of your script using the GitHub development platform. Push and pull changes frequently to keep the contents of the local and remote repositories synchronised. Add your instructor as a collaborator to your repository. You instructor, acting as your supervisor, will check the repository and make comments during code development. You are to review your code based on those comments and when making further commits, state the words “acted on review” in the summary field of Desktop GitHub.

## Task 1.5 Debugging

* Use the source debugger within a web browser to debug your script
* Provide a short Panopto video with commentary that shows the debugger in action, including a variables contents changing, stopping at a breakpoint, stepping over a function, stepping into a function and, identification of the cause of a logic error. *Be brief by not including any more content than is required for the task*

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| Upload the Panopto video to the assessment dropbox for this unit. Also, enter the hyperlink to the Panopto video here and ensure that your instructor has read access to the video |

* Provide a list of three semantic/logic errors you have encountered and how you rectified them.   
  *Note that syntax errors are not acceptable. The errors must be caused through incorrect logic*

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| **Error** | **Rectification** |
| *e.g. Handler placed on incorrect element* | *Handler moved to correct element* |
| By default header background color is correct but  When Spanish selected first and change back to english, the colour is not changing. | The colour in English button was not correct, so I changed it green |
| When selecting Rectangle, square is being drawn | This is because only width is being given to rectangle option and is used as height, which will be same so instead of rectangle, square is being drawn  Changed the height to half of width to draw rectangle since there is no other input being taken for height. |
| When there are no values keyed in the fields, form is still being submitted, this is incorrect as there should be error displayed | This is because there is no “return false” statement provided in the validation.  Added return false for form validation when no fields are keyed in. |

**Task 1.6 Testing and testing documentation**

Develop test cases to confirm the code meets the script requirements and outcomes as well as testing for error conditions. List ALL the test cases that need to be run.

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| **EXAMPLE**  **Title: Data appended to the file is encrypted**  **Preconditions: database exists, menu option has been chosen** | | |
| **Steps** | **Expected response or output** | **Actual response or output** |
| Add username: user1  Add password: pass1  Add related resource: URL1 | Information message: "Your data has been saved" | Information message: "Your data has been saved" |
| Open database with text editor | Database file contents should be encrypted as follows  xvhu4 sdvv4 xuo4 | xvhu4 sdvv4 xuo4 |
| **Details of code modification** | None required | |

Record two of your test cases below as well as any subsequent code modification that occurred if any.

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| **Draw function**  **Title: Draw selected shape**  **Preconditions: colour, size and shape to be selected** | | |
| **Steps** | **Expected response or output** | **Actual response or output** |
| **Select Size – use slider**  **Select Colour - red**  **Select Shape: rectangle**  **Select Draw button** | Rectangle with selected colour is drawn on canvas | Red Square of selected size is drawn on canvas |
| **Details of code modification** | Height is not provided in the inputs so width and height were same  Code changed to divide width/2 to make height so that rectangle can be drawn | |

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| **Title: Validation for password and confirm password is to be same**  **Preconditions: none** | | |
| **Steps** | **Expected response or output** | **Actual response or output** |
| **Fill form**  **Key in user name – Aliveni**  **Key in email address – aliveni@gmail.com**  **Key in password – aliveni12**  **Key in confirm password – password2**  **Select one file**  **Click submit button** | Error Password and Confirm password do not match | Alert window displayed with “Password & Confirm Password dont match, check your password/s try again” |
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| **Code modification** |  | |

**Task 1.7 Confirm completion**

* Contact your instructor, who is acting as your supervisor, when your script is complete to confirm that script requirements and outcomes have been met. Document this discussion via bullet points or brief notes, make adjustments to the code if required and make a GitHub commit stating the words “Sign-off from supervisor” in the summary field of Desktop GitHub.

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| *Enter notes of*   * The discussion with your supervisor confirming that the script requirements and outcomes have been met. |

Ensure you have pushed all commits to your remote GitHub repository and then download your repository in .zip format and, submit as part of your assessment along with this assessment document and the Panopto video.