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| **Subject** | Digital Technologies | **Task Name** | JavaScript Project |
| **Semester** | 2 | **Task Number** | 3 |
| **Teachers** | Mr Henley | **Type** | Digital Project |
| **Due date** | 8 September 2021 | **Authorship** | Individual |
| **Context** | | | |
| You have been learning how to program using JavaScript. This allows you to make web pages that are interactive. You will use your ability to program with JavaScript complete the following task. | | | |
| **Task Description** | | | |
| Sam builds custom aquariums. Currently his customers need to call him to receive an estimate for the cost of an aquarium. He has asked you to add JavaScript functionality to his website to calculate the cost of an aquarium based on the dimensions submitted by the user.  Details of how to calculate costs is included below. The HTML and CSS files are available on SEQTA along with a blank JS file. You will write your code in the JavaScript file. | | | |
| **Conditions/Submissions** | | | |
| * Class time is provided to complete the tasks. You may also work on these outside of class time. * You may also seek assistance from your teacher. You may also use the internet to find solutions to problems that arise. * Use a text editor such as Notepad++ to write your program. Save your work every few minutes. Every lesson commit your work to GitHub. This way all is not lost if your file is corrupted or accidentally wiped. You can also revert back to previous versions if changes you make have unintended consequences. * When you have completed the task zip the HTML, CSS and completed JS file along with this completed document and submit to SEQTA. | | | |
| **Think about** | | | |
| * How will you manage your time so you can complete this task by the due date? * How will I desk check and debug my program? | | | |

**Aquarium Calculator Requirements**

* Make sure your costs shows dollars and cents.
* Costs change, so plan your program so that you can easily change the glass cost, glue cost and labour cost.
* Sam’s costs are listed below:
  + - Large aquariums need thicker glass. Sam uses 4mm thick glass (6c/cm2) for aquariums up to 25cm high and 6mm thick glass (10 c/cm2) larger ones.
    - Sam calculates how much glue he will used based on length of the edges he needs to glue. He charges 10 cents per cm that he needs to glue.
    - Sam’s time is valuable. He charges $60 per hour. It takes him 1 hour to make an aquarium with a surface area of 6000 cm2.
    - Don’t forget Sam will have to pay GST on the total cost, and the amount of GST should be shown. GST is calculated as 10% of the total cost.
* If you have time you can provide some extra information for the customers. For example, customers might like to know how many litres of water the aquarium will hold, how heavy it will be and how many fish they can safely put into it. To calculate this you will need this data:
  + - 1 litre of water weighs 1 kg.
    - for tropical fish for every 1cm of fish (not counting the tail) allow 75cm2 of surface area.

If you can think of any additional features to make the web page more useful, try and add them. Eg. You could add a warning if the size is impossibly big or recommend filter size based on the volume of the aquarium.

**Complete the following tasks to successfully complete the project**

* Name of Project
* Record the URL of your GitHub page for this project
* Develop a flowchart showing how your program will operate.
* Keep a record of your testing. Do this by copying your JavaScript code and pasting it below. Annotate your code to clearly highlight errors. Explain what the problem is and what you will do to solve the problem. Repeat this process as you continue to identify errors.
* Evaluate your solution in terms of risk, sustainability and potential for innovation and enterprise.

## Years 9 Digital Technologies standard elaborations

|  | | A | B | C | D | E |
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|  | | The folio of a student’s work has the following characteristics: | | | | |
| Process and Production Skills | Generating and designing;  producing and implementing | purposeful design and proficient implementation of modular programs, including an object-oriented program, using algorithms and data structures involving modular functions that reflect the relationships of real-world data and data entities | effective design and effective implementation of modular programs, including an object-oriented program, using algorithms and data structures involving modular functions that reflect the relationships of real-world data and data entities | design and implementation of modular programs, including an object-oriented program, using algorithms and data structures involving modular functions that reflect the relationships of real-world data and data entities | partial design and implementation of modular programs using algorithms and data structures | fragmented design and implementation of modular programs |
| systematic testing and prediction of results and proficient implementation of digital solutions | reliable testing and prediction of results and effective implementation of digital solutions | testing and prediction of results and implementation of digital solutions | partial testing and prediction of results and partial implementation of digital solutions | fragmented testing and prediction of results or fragmented implementation of digital solutions |
| Evaluating | discerning evaluation of information systems and their solutions in terms of risk, sustainability and potential for innovation and enterprise | informed evaluation of information systems and their solutions in terms of risk, sustainability and potential for innovation and enterprise | evaluation of information systems and their solutions in terms of risk, sustainability and potential for innovation and enterprise | explanation of information systems and their solutions | description of information systems and their solutions |
| Collaborating and managing | comprehensive planning and management of digital projects using an iterative approach | informed planning and management of digital projects using an iterative approach | planning and management of digital projects using an iterative approach | partial planning and management of digital projects using an iterative approach | fragmented planning and management of digital projects |

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| Key | shading emphasises the qualities that discriminate between the A–E descriptors |