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CSCI251 Advanced Programming Assignment 2 Report

The design thought process of the assignment kickstarts at main.cpp file. In the main menu, it calls a class called Assignment 2 which takes in the id and name of the student as string so that everytime a main menu is displayed, id and name will appear as well. Main will execute a do while loop of options that execute different functions based on the options.

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The Assn2.h file will store the declaration of the following functions and a ShapeTwoD pointers of array is declared.

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1. The function printMenu will display the choices for user to input.
2. The function inputSensorData contain a set of if else statements to determine the shape that the user wants. An array of index = 0 of the shape class is being called as well as the number of vertices. Depending on the number of vertices, A struct vertex pointer vertices points to the dynamically allocated array of vertex.

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1. The function computeArea generates a for loop to store the number of shapes being created.
2. The function printShapeReport also uses a for loop and access members of a toString method to get the details of the shape created such as name and special type, followed by accessing members of a printPoints function which holds the pointersOnShape and pointsInShape function.
3. The function sortShapesData uses for loops to swap the areas of different shapes using temp variables declared, same goes for sorting by special type.

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The ShapeTwoD.h files will have declarations of the base class ShapeTwoD as well as a struct Vertex which holds the x and y values for accessibility.

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The remain derived classes of different shapes will be able to access and override the base class function. For example, the function isPointInShape of class square override the default virtual function and access a Vertex pointer extremePointers.

A screenshot of a computer

Description automatically generated with medium confidence

Depending on user’s input of x and y values, uses a for loop and array to store the smallest and highest of x and y axis.

**Things that could be improved:**

I think one of the things that could be improved would be having a good practice that each time a new dynamic memory is allocated, I should use a delete command to deallocate the memory so that it can be reused.

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