**Short Answer Questions Guidelines**

* Download this assessment to your local computer
* Upload your answers to your repository at the end of each period (Today & Tomorrow)
* Answer the questions using MS Word
* For each question clearly identify each of the points you are answering
* Provide complete sentences for each point with clear details and justification
* Clearly format included Java code samples as required for some questions
* Answer any 8 out of the 9 questions from the list below
* Only the first 8 questions will be marked
* Each question is worth 5 marks
* The total for this summative is 40 marks

**Short Answer Questions**

1. Describe a situation in class where one-dimensional and two-dimensional arrays were used to store and manage data. Structure your answer as follows.
   1. Summarize the work or activity you did that links to the topic.
   2. Explain specifically how the work or activity is related to the topic
   3. Provide or explain specific examples of your work. Include sample Java code.
   4. For additional marks, provide sample Java code to add, change, and delete elements of the array.

When I was working on the 3D TicTacToe assignment I had to create an array that would represent the 36 possibilities of the Gameboard. In this case when looking at the sample code below in which is stored as a private variable created for the purpose of only my personal class that is the gameboard this this represents the possibilities of 1 to 8, 9 to 17, 18 to 36 on the dimensions of the GameBoard

**This is the line of code:** private String[] gameBoard = new String[36];

1. Describe a situation in class where code was developed to read from and write to and external file. Structure your answer as follows.
   1. Summarize the work or activity you did that links to the topic.
   2. Explain specifically how the work or activity is related to the topic
   3. Provide or explain specific examples of your work. Include sample Java code.
2. Describe a situation in class where code was developed to implement classes and objects. Structure your answer as follows.
   1. Summarize the work or activity you did that links to the topic.
   2. Explain how classes and objects are related but are also different
   3. Provide an example of a class that includes a constructor and at least one method. Include sample Java code.
   4. Explain, using your example class, how an object can be created and used. Include sample Java code.

I discovered the basics of class and object oriented related programs when we worked on the Student Database project.

Public static void AddButton () { // for the Add Button function

This would be a method to call code functionality for the Add Button by Robin

Public static void DeleteButton () { // for the Delete Button function

This would be a method to call code functionality for the Delete Button by Robin

Public static void EditButton () { // for the Edit Button function

This would be a method to call the code functionality for the Edit Button by Calvin

Public static void Columns () { // Creates the table structure by outputting the number of columns

Public static void TableBoxes () { // Holds and lays out the student info from the database (Currently filled as a blank String)

1. Describe a situation in class where code was developed to implement private and public constants, variables and methods in a Java class. Structure your answer as follows.
   1. Summarize the work or activity you did that links to the topic.
   2. Explain the difference between making a variable “public” or “private”.
   3. Provide sample Java code for public and private constants, variables and methods.

When me and Antonio had the part to create the GameBoard for the 3D TicTacToe Assignment. Where were assigned to create Public Constants & Variables called playerFree, playerX, playerO.

I created them as public constants:

public static String playerFree = " ";

public static String playerX = "X";

public static String playerO = "O";

When comparing a public to a private variable, public allows for that variable to be accessed from any secondary(other) java classes that are called/extended from that program. When a variable is made private this keeps the variable access only within the primary java program it is defined in.

1. Describe a situation in class where code was developed to implement a standard mathematical algorithm or to implement a specification provided by your teacher.
   1. Summarize the work or activity you did that links to the topic.
   2. Explain specifically how the work or activity is related to the topic
   3. Provide or explain specific examples of your work. Include sample Java code.
2. Describe a situation in class where code was developed to implement a graphical user interfaces (GUI). Structure your answer as follows.
   1. Summarize the work or activity you did that links to the topic.
   2. Explain specifically how the work or activity is related to the topic
   3. Provide or explain specific examples of the widgets used to implement the GUI. Include sample Java code.
   4. For additional marks, provide sample Java code to add, change, and delete elements of the widgets.

When working on the Student Database I was assigned to create the UI of the SWT based interface. It contained the on screen functionalities such as the buttons and the layout of the table.

I was able to create this output by importing SWT widgets such as:

import org.eclipse.swt.widgets.Button;

Which allowed me to create the different graphical buttons themselves and give them a name creating these variables:

//Add Button

ADD = new Button(table, SWT.TOGGLE);

ADD.setText("Add");

ADD.setEnabled(true);

import org.eclipse.swt.widgets.Table;

Allowed me to create the general cell structure of each table box.

//Creates the Table Structure

Table table = new Table(shell, SWT.MULTI | SWT.BORDER | SWT.FULL\_SELECTION);

table.setLinesVisible(true);

table.setHeaderVisible(true);

import org.eclipse.swt.widgets.TableColumn;

Allowed me to create and generate the table layout of the rows and columns.

//Counts the number of row headers/titles and outputs a table in relation to the number of rows.

for (int i = 0; i < titles.length; i++)

{

TableColumn column = new TableColumn(table, SWT.NONE);

column.setText(titles[i]);

}

for (int i = 0; i < titles.length; i++)

{

table.getColumn(i).pack();//Generates the cell for each column

}

import org.eclipse.swt.widgets.TableItem;

Allowed me to fill the table with any text content. In this case I filled them all as blank so that way when we generate the student data it will fill in those spots.

//Loop that generates blank boxes and the Add/Delete Button into the table

for (int i=0; i<8; i++) { // Creates 8 columns within 5 rows

TableItem item = new TableItem (table, SWT.NONE);

item.setText (0," " ); //Blank string/box

item.setText (1," " );

item.setText (2," " );

item.setText (3," " );

item.setText (4," " );

item.setText (5," " );

1. Explain the importance of designing reusable and partitioned code in computer programs. Structure your answer as follows.
   1. Explain the benefits of separating code into well-defined classes and objects
   2. Explain the importance of having well defined interfaces (e.g. public methods)
   3. Describe a situation in class where you implemented code based on a specification that was provided.
   4. Describe a situation in class where you documented the interface and specification for code you developed.
2. Describe a situation in class where you participated in a multi-student project involving Java code. Structure your answer as follows.
   1. Summarize the work or activity you did that links to the topic.
   2. Explain the software development plan that was created for the project
   3. Explain how students communicated with each other regarding the status of their individual assigned tasks.
   4. Explain how the code developed by different students was merged into one project
   5. Explain how industry-standard programming tools (e.g. Eclipse, GitHub) are used to support multi-student software projects.
3. Describe a situation in class where you worked independently to develop Java code. Structure your answer as follows.
   1. Explain how you used help functions and reference documentation to resolve syntax issues (coding issues) while programming. Provide specific examples.
   2. Explain how you used reference documentation to find sample code that you could use and modify implement parts of your program. Provide specific examples.
   3. Explain how you used the Eclipse environment to debug your program

After we were introduced to the SWT widgets of Eclipse I worked on Student Databases interface.. At first I was getting syntax errors with the errors being on the of my upper lines that was few of my imports such as

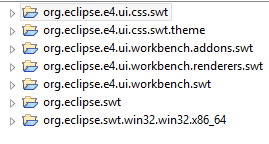
import org.eclipse.swt.widgets.Table;

import org.eclipse.swt.layout.GridLayout;

import org.eclipse.swt.layout.RowLayout;

import org.eclipse.swt.widgets.Button;

This caused every variable that I used the imported types to also have errors because it was not defined correctly. I figured out through an online forum called stackoverflow.com that to get other SWT widget imports such as the ones listed below you need to have a few of these following enable within the properties of your Java Project’s Build Path.



As I originally had only had org.eclipse.swt installed and that was only able to support the SWT widget basics such as Text, Display and Shell.