**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.

a. Summarize the work or activity you did that links to the topic.

The activity that i did for this was i used a 1 dimensional array for the student database and i used a 2 dimensional array for my tic tac toe assignment last year.

b. Explain specifically how the work or activity is related to the topic

The reason why these 2 projects are related to this topic is because for the student database i only had to create a 1 dimensional array to hold student names and stuff but for the tic tac toe assignment i had last year i had to make a 2 dimensional array to make a 6x6 tic tac toe grid.

c. Provide or explain specific examples of your work. Include sample Java code.

import java.util.Scanner;

public class Add {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

String[] students;

students = new String[26];

int NoS = 0;

System.out.println("please type in a students name, last name, id and grade Ex: Robin Saran 568624 12");

  students[NoS] = sc.nextLine();

  System.out.println("would you like to add more students?");

 String Continue = sc.nextLine();

while (Continue.equalsIgnoreCase("yes")){

NoS++;

System.out.println("please type in a students name, last name, id and grade Ex: Robin Saran 568624 12");

students[NoS] = sc.nextLine();

System.out.println("would you like to add more students?");

Continue = sc.nextLine();

 }

 while(NoS>=0){

 System.out.println(students[NoS]);

 NoS--;

 }

}

}

What the array in this program does is it hold the names of the students and then after you are done adding students it prints out the name of the students you put in.

d. For additional marks, provide sample Java code to add, change, and delete elements of the array.

2.    Describe a situation in class where code was developed to read from and write to and external file. Structure your answer as follows.

a. Summarize the work or activity you did that links to the topic.

b. Explain specifically how the work or activity is related to the topic

c. Provide or explain specific examples of your work. Include sample Java code.

3.    Describe a situation in class where code was developed to implement classes and objects. Structure your answer as follows.

a. Summarize the work or activity you did that links to the topic.

b. Explain how classes and objects are related but are also different

c. Provide an example of a class that includes a constructor and at least one method. Include sample Java code.

d. Explain, using your example class, how an object can be created and used. Include sample Java code.

4.    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.

a. Summarize the work or activity you did that links to the topic.

An activity that we did that relates to the topic is the tic tac toe project that we just started mine and calvins part is to make the win conditions and in that we made a private variable that keeps track of oh whether it is O’s turn or X’s turn.

b. Explain the difference between making a variable “public” or “private”.

The difference between public and private variables is that public variable is a variable that is able to be seen by all classes and a private variable is a variable that is only able to be seen by the class it is in.

c. Provide sample Java code for public and private constants, variables and methods.

5. Describe a situation in class where code was developed to implement a standard mathematical algorithm or to implement a specification provided by your teacher.

a. Summarize the work or activity you did that links to the topic.

The activity that I did that me and my group had to develop code for standard mathematical algorithms was when we had to create a calculator together. What we had to do in this project was we had to create a calculator from scratch without using any of the java functions such as powers or roots. In the calculator what we did was that we had to make our own mathematical formulas/algorithms that would do things such as figure out how to do sin or exponents

b. Explain specifically how the work or activity is related to the topic

The work that we did is related to this topic is because we had to make code for our computers that tells them how to solve certain mathematical equations such as powers, factorials, sin, roots, ect.

c. Provide or explain specific examples of your work. Include sample Java code.

**import** java.util.Scanner;

**public** **class** Trigonometrycalculator {

**public** **static** **void** main(String[] args) {

          Scanner sc = **new** Scanner(System.*in*);

          //what this part did was it made a scanner to allow someone to put in their angle for the sin function

**double** a = 180;

**double** b = 40500;

**double** c = 4;

          //what this part did is i made 3 doubles to hold the variables that i needed to actually make the mathimatical function work

    System.*out*.println("Enter your number");

**double** x = sc.nextInt();

**double** d = x;

          // what this part did is it would ask for the angle the person needed to use the sin function on

          a = a-x;

          c = c\*x;

          c = c\*a;

          d = d\*a;

          b = b-d;

          c = c/b;

          // what this part did is this was that did all the math for example multiply dividing and stuff like that

          System.*out*.println("x = " + c);

          //this part was used to pint out the answer

}

}

What this piece of code did is it would figure out how to do the sin function. This piece of code isn’t perfect as it was only able to go close up to 180 degrees and the explanations to how the code works is in it(the green writing)

6. Describe a situation in class where code was developed to implement a graphical user interfaces (GUI). Structure your answer as follows.

a. Summarize the work or activity you did that links to the topic.

The activity that I did where I had to use a GUI was the calculator that we had to make.

b. Explain specifically how the work or activity is related to the topic

The reason why this activity is related to the topic is because we had to make an GUI for our calculator. The reason why we did this was because we were learning how to use swt widgets.

c. Provide or explain specific examples of the widgets used to implement the GUI. Include sample Java code.

The widgets that we used were display, mouse listener, buttons,  spinners, GridData, GridLayout, Event, Label, List, text and Shell

d. For additional marks, provide sample Java code to add, change, and delete elements of the widgets.

7. Explain the importance of designing reusable and partitioned code in computer programs. Structure your answer as follows.

a. Explain the benefits of separating code into well-defined classes and objects

The benefits of separating the code into well-defined classes and objects are that It makes the code much easier to read as separate parts of the program are in different classes also makes it much easier to debug/fix the code because if they are in different classes you can find out what the problem is much faster and fix it

faster as well. Another reason why it’s better to separate code by classes is because if you need to make another program and you need a part of an old program instead of rewriting the code you can just call on the former class.

b. Explain the importance of having well defined interfaces (e.g. public methods)

The reason why it is important to have well defined interfaces is because if you have a messy interface it is a lot easier to make common mistakes such as typing the wrong thing without noticing and putting things in the wrong spot. Another reason why it is important to have a well-defined interface is because it will make it a lot easier to work with and if someone else is looking at your interface they will also know what is going on rather than being confused

c. Describe a situation in class where you implemented code based on a specification that was provided.

A situation in class where I had to implement code based on a specification that was provided was in one on our recent group projects about student records I had to implement code that made it so you could add and delete students while others had their own parts to do.

d. Describe a situation in class where you documented the interface and specification for code you developed.

A time when i documented specifications for code in class was during our assignment to make a student database. The specifications i had to do was i had to make the add and delete function that would allow you to add and delete students into the database

8. Describe a situation in class where you participated in a multi-student project involving Java code. Structure your answer as follows.

a. Summarize the work or activity you did that links to the topic.

The activity that I did where we had to participate in a multi-student project involving java code was a project where we had to make a student database that would hold up to 25 students

b. Explain the software development plan that was created for the project

Each of us had our own part that we had to do and at the end we would merge it all together for example my part was adding and deleting students into the database and calvin’s part was to modify the students and someone else’s part was to making the GUI and so on.

c. Explain how students communicated with each other regarding the status of their individual assigned tasks.

The way that students would communicate with each other regarding the status of their individual assigned tasks is we would upload all our work to github in 1 repository so we would be able to look at each other’s work and see how far everyone was and we would also just talk to each other in real life if we needed a certain thing from someone else’s program.

d. Explain how the code developed by different students was merged into one project

The way the we merged our code together was we all uploaded it to github and we would call on the methods so when that method was called it would do what it’s supposed to do such as modify student IDs, add students, delete students so on so forth.

e. Explain how industry-standard programming tools (e.g. Eclipse, GitHub) are used to support multi-student software projects.

These tools are used to support multi-student software projects because they make it a lot easier to share information and see what others are doing. It also makes it very easy to merge programs because they can just upload all of it to github and all someone has to do is take all the codes and put them together.

9. Describe a situation in class where you worked independently to develop Java code. Structure your answer as follows.

a. Explain how you used help functions and reference documentation to resolve syntax issues (coding issues) while programming. Provide specific examples.

The way that i would fix my syntax errors was i would usually just click on the red circle on the side and pick the option that it would tell me and that would usually fix it but if that didn't fix it i would look up the problem im having on google and see if i can figure out a way to fix it from what it tells me or if someone ran into the same problem and fixed it they post it i can see what they did and do the same thing in my program and fix it.

b. Explain how you used reference documentation to find sample code that you could use and modify implement parts of your program.  Provide specific examples.

The ways that I implemented sample code into my programs was I would first try to do everything on my own from scratch but if I would run into a problem that I couldn't fix after about 10 min I would usually look up how others did it and then try to do what they did but in my own way.

c. Explain how you used the Eclipse environment to debug your program

The way that I would use the eclipse environment to debug my program was I work on my program until I would run into an error and once I did i would try to at first fix it on my own and try to figure it out but if that doesn't work what I would do is I would click on the circle on the side with the “X” in it and it would give me suggestions on how to fix my program and i would use that.