MCAST

ITSFT-406-1502: Programming Concepts

Assignment 1 Part 1

Basic Programming Concepts

November 2022

Marking Scheme:

KU1.1 – Programming Concepts	5 marks
KU1.3 – Syntax Review	5 marks
KU1.4 – Flow of Code	5 marks
KU3.1, AA1.2 – Code Structure	12 marks
KU2.1, KU 2.2 – IDEs	10 marks
Total:	**37 marks**

Guidelines (please read):

- You have **2 hours** to complete all of this TCA , from the time the assignment starts. Arriving late for the assignment is your responsibility.
- This is a closed-book assignment. You are **not** allowed to use any class notes, books, websites, or any other source unless instructed otherwise.
- Copying, or even attempting to copy from such sources or from those around you will result in the enforcement of the current disciplinary procedures.
- If you have any questions during the assignment, kindly ask the invigilator.
- It is required that you are clear in your answers. Attempting to be vague on purpose will result in marks being deducted.

Programming Concepts

KU1.1 - Describe what is meant by programming concepts **5 marks**

1. For each statement below, write whether it is *true* or *false* (*0.5 marks each*)

Statement	**True or False**
Pseudo-code is higher-level (easier to understand) than programming languages.	
An IDE stands for Integrated Development Entity.	
A programming language should have formal strict rules (be unambiguous).	
Developers can easily change the syntax of a programming language.	
When data is structured, or given a meaning/context, it becomes information.	
The IF statement is a programming paradigm.	

2. Give an example of when the loop listed below is preferred. Justify your answer (2 marks):

For loop:

_____

_____

While loop:

_____

_____

Programming Concepts
KU1.3 - Review the programming language syntax **5 marks**

3. The following piece of code contains **5 syntax errors**. List down the 5 errors by writing down the line number and how each error should be corrected. Kindly note that mistakes made up of pairs such as missing parenthesis, etc…only count as 1 mistake. (1 mark each)

```
1.  import java.util.Random;
2.   public class else{
3.       public static void main(String[] args) {
4.           String[] numbers = "one", "two", "three";
5.           Random r = Random();
6.           int randNum;
7.           for (i = 0; i < 10; i++) {
8.               randNum = r.nextInt(words.getLength);
9.               System.out.println(words[randNum]);
10.           }
11.       }
12.  }
```

_____

_____

_____

_____

_____

_____

Programming Concepts
KU1.4 - Explain the importance of the effects of the flow of code or data **5 marks**

4. a) Mention 3 different types of loop in Java (*1 mark each*)

Loop Structure 1: _____

Loop Structure 2: _____

Loop Structure 3: _____

b) The keywords *break* and *continue* can be used inside loops to alter flow. Clearly explain what each of them does, inside a loop.

break (*1 mark*)

_____

_____

_____

continue (*1 mark*)

_____

_____

_____

Programming Concepts
AA1.2 – Outline the code structure so that anyone else can understand it **7 marks**

5. The Java program below asks the user to enter his name and surname as one input, then checks whether the input contains a space. If it does, it splits the name and surname into two different strings and outputs them. If not, it outputs "*Tom*" as the default name and "*Smith*" as the default surname.

Use the following tokens (once and only once) to fill in the blanks in the code (*0.5 marks each*)

Return	substring(i+1)	Scanner	int	name	indexOf	System.in
String	nextLine()	s	public	substring(0,i)	void	-1

```
import java.util._____________;

____________ class ClassA {

    public static ____________ main(String[] args) {

        _____________ s = getAndValidateUserInput();

        String _____________ = getNameOnly(s);
        System.out.println(name);

        String surname = getSurnameOnly(s);
        System.out.println(surname);
    }

    public static String getAndValidateUserInput()
    {
        Scanner s = new Scanner(_____________);
        System.out.println("Enter your name and surname:");

        String input = s._____________;

        if (input._____________(" ") != ____________)
            return input;

        else ____________ "Tom Smith";
    }

    public static String getNameOnly(String s)
    {
        _________ i = s.indexOf(" ");

        return s._________________;
    }

    public static String getSurnameOnly(String __________)
```

```
    {
        int i = s.indexOf(" ");

        return s._____________________;
    }}
```

Programming Concepts

KU2.1-Explain what is an IDE and how to use it **5 marks**

6. Give an example of an IDE: (1 mark)

_____

7. List and explain 2 useful features that are usually found in IDEs.(2 marks)

_____

_____

8. What is the difference between source code and compiled/built code?(2 marks)

_____

_____

Programming Concepts
KU2.2 – Recognize and use the main views of an IDE ***5 marks***

9. What are the following panels used for in NetBeans?

   a) The Project Panel (*2.5 marks*)

   _____

   _____

   b) The Output Panel (*2.5 marks*)

   _____

   _____

Programming Concepts
KU 3.1 – Explain the basic structure of a program ***5 marks***

10. Complete the following table, explaining what the specified keywords are used for. (*1 mark each*)

Keyword	**Used for**
class	
package	
import	

11. Consider the following method signatures:

```
public static String read(String s, float f)
{
        //method code here
}

public static void write(String s)
{
        //method code here
}
```

For each statement below, write whether it is *true* or *false*, regarding the methods above (*0.5 marks each*).

Statement	**True or False**
The method *write* returns a String.	
The method *read* returns a String.	
The code inside *read* should include a *return* statement.	
The method *read*, can take as parameters (inputs) a String only, a float only, or both	

----------*End of Assignment Part 1*----------