AMCS2034

Introduction to Data Structures & Algorithms

Answer Template

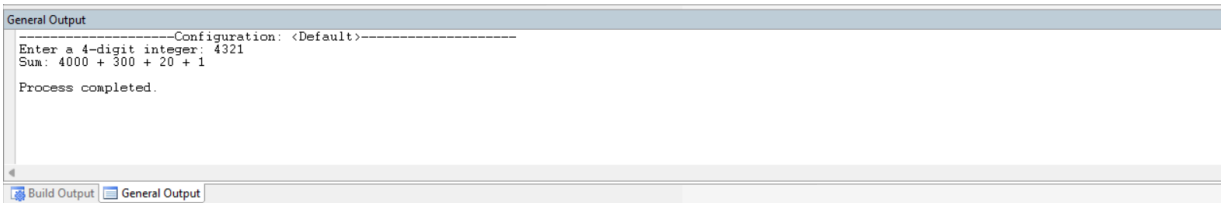
Name:	**NATALIE KOA HAO YEE**
Programme:	**DSF**

Question 1

Code: *Insert your code into the answer box below.*

```
//QUESTION 1
import java.util.Scanner;

public class BreakInteger {
        public static void main (String [] args ) {
                Scanner scanner = new Scanner(System.in);

                //prompt to enter digit
                System.out.print("Enter a 4-digit integer: ");
                int number = scanner.nextInt();

                int thousands = (number / 1000) * 1000;
    int hundreds = ((number % 1000) / 100) * 100;
    int tens = ((number % 100) / 10) * 10;
    int ones = number % 10;

    //display it
    System.out.println("Sum: " + thousands + " + " + hundreds + " + " + tens + " + " + ones);
        }
}
```

Screenshot of Output: *Attach a screenshot showing the output of your program. Ensure that the screenshot clearly shows the expected results.*

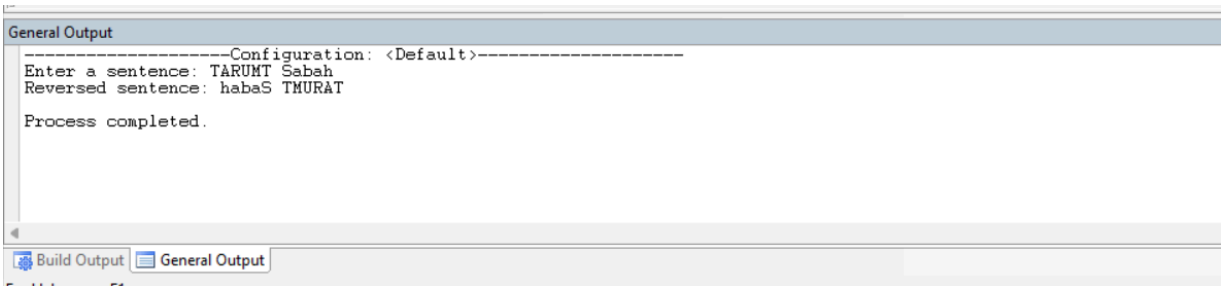


Question 2

Code: *Insert your code into the answer box below.*

```java
// QUESTION 2

import java.util.Scanner;

public class ReverseSentence {
   public static void main(String[] args) {
         //Uses Scanner to prompt user
      Scanner scanner = new Scanner(System.in);
      System.out.print("Enter a sentence: ");
      String sentence = scanner.nextLine();

      // reverse() method in StringBuilder
      StringBuilder reversed = new StringBuilder(sentence);
      reversed.reverse();

      System.out.println("Reversed sentence: " + reversed.toString());
   }
}
```

Screenshot of Output: *Attach a screenshot showing the output of your program. Ensure that the screenshot clearly shows the expected results.*



Question 3

Code: *Insert your code into the answer box below.*

```
// QUESTION 3

import java.util.ArrayList;
import java.util.Iterator;

public class ArrayIterator {
    public static void main(String[] args) {
        // a) Initialize an ArrayList<String> to store a list of colors.
        ArrayList<String> colors = new ArrayList<>();

        // b) Use the add() method to insert the Malaysian flag colors "Red", "Blue", "White", and
//"Yellow" into the ArrayList.
        colors.add("Red");
        colors.add("Blue");
        colors.add("White");
        colors.add("Yellow");

        // c) Retrieve an Iterator<String> from the ArrayList by calling the iterator() method.
        Iterator<String> iterator = colors.iterator();

        //  d) Use the hasNext() and next() methods of the Iterator to traverse the ArrayList and display
//each color.
        System.out.println("Malaysia flag colors are:");
        while (iterator.hasNext()) {
            System.out.println(iterator.next());
        }
    }
}
```

Screenshot of Output: *Attach a screenshot showing the output of your program. Ensure that the screenshot clearly shows the expected results.*