

# Sri Lanka Institute of Information Technology



## Software Technology II (OOP in Java)

Year 2 – Semester 1, 2015

### Programming Assignment 01

Develop a set of command console Java applications to solve the problems given below. Mention your student number and the name as comments in all your source codes.

1. Write a Java program to get the height of a person in feet and inches as command line arguments. Then convert the height in to metric form (meters). Display the height in meters. Save your answer as "Question01.java".

Hint :        1 feet = 0.3 meters  
              1 inch = 0.025 meters

2. Write a java program to convert a given decimal number into octal form. You must use a do-while loop in Java to produce the output. Save your answer as "Question02.java".

. e.g                      157  
                              8  
                             19 - 5                      Given number : 152  
                              8                      Octal number : 235  
                             2 - 3  
                              8  
                             0 - 2

3. Write a program to get the distance between two cities in miles and yards as keyboard inputs. Then convert the distance in to metric form (kilometers). Display the distance in kilometers. You must use BufferedReader class to get keyboard inputs. Save your answer as "Question03.java".

Hint :    1 mile = 1.6 kilometers  
          1 mile = 1760 yards

4. Write a java program to obtain the following shape. You must use while loops in Java to generated the output. Save your answer as "Question04.java".

Note: The & sign is line 4 has been purposefully removed. Your design should consider this and print it same as given here.

```

    & & & & &
  & & & & &
& & & & &
& & & &
& & & & &
& & & & &
```



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9. Write a Java program to extract and display the user id when an e-mail address is inserted as a keyboard input to a program. Save your answer as "Question09.java".

Eg:

Email : abc\_123@gmail.com

User Id : abc\_123

Note : You may use `substring()` and `indexOf()` methods in String class and methods in Scanner class.

10. Write a java program to get a string as a key board input. Then count the number of letters, digits and spaces available in that string and display the count of letters, digits and spaces. Save your answer as "Question10.java".
11. Write a Java program to perform a mathematical calculation between two numbers entered by the user. Whenever you run the program main method should display an output (main menu) as given below.

```
Enter
* : For multiplication
/ : For division
+ : For addition
- : For Subtraction
Any other character : To exit
Mathematical Operation : _
```

- Get the mathematical operation to be performed from the user as a keyboard input.
  - Once the mathematical operation is selected get the two number as keyboard inputs.
  - Display the result of operation and display the main menu again.
  - You must perform calculation between numbers until user decided to exit from the program.
  - Save your answer as "Question11.java".
12. Write a Java program to read a sentence which contains more than 10 words as a keyboard input and to find the number of words in the sentence that starts with letter 'i'. You must use class `StringTokenizer` to break the sentence into words. Save your answer as "Question12.java"

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13. Write a Java program to store the following data set in a two dimensional array. Then access the array and write all these information in to a text file called "student\_data.txt" . Use a traditional for loop to access the array. Save your answer as "Question13.java"

STUDENT NO	STII	SPD	PS	DCCNII	SEI
DIT/10/C1/0001	A	A-	B+	A	A-
DIT/10/M2/0123	C-	C	B	B	B+
DIT/10/M1/0054	D	C-	C	B-	B
DIT/10/M1/0025	A	A	A-	A	A-
DIT/10/C2/1254	C	C-	B	B+	B

14. Re-write the above Java program again. Use a for-each loop to access the array. Save your answer as "Question14.java"

## Software to be used

Please use.

- Notepad to develop Java source codes.
- Java compiler in command console to compile Java programs.

## Deliverables

### Source Code

- You must submit all the Java source codes (.java)
  - Name your each solution source file with the question number
- Mention your student number, name and batch as comments in all your source codes.
- Compress the \*.java files into a single ZIP file when you submit.
  - Name the zip file with your id number
- Your ZIP file should include a *readme.txt* file, which include your information.
- Follow the links in Moodle to upload your answer on or before the deadline.

**Note :** If the size of the ZIP file is above 8MB then you will not be able to upload in moodle. In such case you MUST submit the answers in a CD before the deadline.

## Deadline

**You must submit your answer on or before 11.59 P.M. on 16<sup>th</sup> of February, 2015.**

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Programming Assignment 01

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## Evaluation

- **THIS ASSIGNMENT IS COMPULSORY.**
- **ANY STUDENT, WHO DOES NOT SUBMIT THE GETS 0 MARK FOR THE ASSIGNMENT.**
- **IF THE EXAMINER BELIVES THAT THE ANSWER SUBMITTED IS NOT A GENUINE WORK OF THE STUDENT, THEN THE EXAMINER HAS THE RIGHT TO GIVE 0 MARK.**

## Key Points to Note

- The assignment is an individual assignment.
- But you are free to discuss with other students.
- Your program must adhere to all the standard Java programming style guidelines including code readability, logical clarity, scoping rules, proper use of class and instance variables, encapsulation, naming conventions for classes, methods and variables and concept of variable-free programming.