



LAB

JAN 2022

TEB1113

Algorithm & Data Structure

Lab 1

NO.	NAME	STUDENT ID	PROGRAM (IT / IS / CS / BM)
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Activity #3

Input: 38 students' score

Process: Count the number of students who passed the exam

Output: Number of students who passed the exam

Pseudocode:

- 1.0 Start
- 2.0 Declare i, student_score, num_pass
- 3.0 Initialise i = 0, num_pass = 0
- 4.0 if i < 38
 - 4.1 Prompt and get student_score
 - 4.2 if student_score >= 40
 - 4.2.1 num_pass = num_pass + 1
 - 4.3 i = i + 1
- 5.0 Display num_pass
- 6.0 End

Activity #4

Pseudocode:

- 1.0 Start
- 2.0 Declare length, width, area, time
- 3.0 Prompt and get length and width
- 4.0 $\text{area} = \text{length} * \text{width}$
- 5.0 $\text{time} = \text{area}/2$
- 6.0 Display time
- 7.0 End

Activity #5

Pseudocode:

- 1.0 Start
- 2.0 Declare stud_mark, num_pass num_fail
- 3.0 Intialize num_pass, num_fail = 0
- 4.0 while True:
 - 4.1 Prompt and get stud_mark
 - 4.1.1 If stud_mark >= 40:
 - 4.1.2 num_pass += 1
 - 4.2 else if stud_mark < 40:
 - 4.2.1 num_fail += 1
 - 4.3 else if stud_mark == "Q" or "q"
 - 4.2.2 break
 - 4.4 else
 - 4.4.1 Display "Please enter valid input: "
- 5.0 Display num_pass
- 6.0 Display num_fail
- 7.0 End

Activity #6

Pseudocode:

```
1.0  Start
2.0  Declare name, amount, tax_code, sales_tax, total
3.0  Prompt and get name, amount, tax_code
4.0  If tax_code == 0:
    4.1  sales_tax = 0
5.0  else if tax_code == 1:
    5.1  sales_tax = amount*(3/100)
6.0  else if tax_code == 2:
    6.1  sales_tax = amount*(5/100)
7.0  else if tax_code == 3:
    7.1  sales_tax = amount*(7/100)
8.0  total = sales_tax + amount
9.0  Display name, amount, sales_tax, total
10.0 End
```

OOP Lab Activity

1. A program to add 2 integers

```
import java.util.Scanner;
public class OOP_Act_1
{
    public static void main(String[] args)
    {
        //Attributes
        String num1;
        String num2;

        // Methods
        // Get input
        Scanner in = new Scanner(System.in);
        System.out.print("Enter integer 1: ");
        num1 = in.nextLine();
        Integer.parseInt(num1);
        System.out.print("Enter integer 2: ");
        num2 = in.nextLine();
        Integer.parseInt(num2);

        //Addition
        System.out.println(num1 + num2);
    }
}
```

```
Enter integer 1: 2
Enter integer 2: 3
23
Press any key to continue...
```

2. A program to swap 2 numbers

```
import java.util.Scanner;
public class OOP_Act_2
{
    public static void main(String[] args)
    {
        //Attributes
        String num1;
        String num2;

        // Methods
        // Get input
        Scanner in = new Scanner(System.in);
        System.out.print("Enter integer 1: ");
        num1 = in.nextLine();
        Integer.parseInt(num1);
        System.out.print("Enter integer 2: ");
        num2 = in.nextLine();
        Integer.parseInt(num2);

        //Addition
        System.out.println(num2 + "," + num1);
    }
}
```

```
Enter integer 1: 1
Enter integer 2: 3
3,1
Press any key to continue..._
```