



Green University of Bangladesh  
Department of Computer Science and Engineering (CSE)  
Faculty of Sciences and Engineering  
Semester: (Spring, Year:2022), B.Sc. in CSE (Day)

LAB REPORT NO # 03

Course Title: Structure Programming Lab

Course Code: 104

Section: PC-213DA

Lab Experiment Name:

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Lab Date : 21/02/2022

Submission Date : 01/03/2022

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# Lab Report - 03

Problem-03: Write a C program to find maximum between two numbers.

**Algorithm :**

1. step 1: start
2. step 2: declare the int variable  $a, b$ .
3. step 3: Display message on the monitor. "Enter numbers".
4. step 4: read ' $a$ '.
5. step 5: read ' $b$ '.
6. step 6: If the number ' $a > b$ ' is true, The statement inside the body of if are excuted. & The statement inside the body of else are skipped from execution. And ' $a$ ' is maximum
7. step 7: Is the number ' $a > b$ ' is not true. The statement do not inside the body of if. It is inside the body of else and execution. And ' $b$ ' is maximum
8. step 8: End.

(2)

```

Qde:
#include <iostream>
int main()
{
    int a, b;
    printf("Enter two numbers: \n");
    scanf("%d%d", &a, &b);
    if (a > b)
        printf("%d 'a' is a maximum number:\n");
    else
        printf("%d 'b' is a maximum number:\n");
    return 0;
}

```

Result :

```

PS D:\SEMESTER 2\CSE 104 LAB\Report\Lab> cd "d:\SEMESTER 2\CSE 104 LAB\Report\Lab"
PS D:\SEMESTER 2\CSE 104 LAB\Report\Lab> cd "d:\SEMESTER 2\CSE 104 LAB\Report\Lab\"; IF ($?) 
Enter two numbers:
125
123
125 'a' is a maximum number:
PS D:\SEMESTER 2\CSE 104 LAB\Report\Lab>

```

Analysis and discussion: If "if - else" statement is true it print will be executive. Otherwise else body is printed. This program I don't face a problem.

①

Problem:02 Write a C program to check whether a number is negative, positive or ~~not~~ zero.

### Algorithm

1. step 1: start
2. step 2: Declair a int variable 'a'.
3. step 3: Display give a message "Enter number"
4. step 4: read 'a'.
5. step 5: If the value is  $a < 0$  is true. The statement inside the body of if and skipped else if & else and executive. The num is negative.
6. step 6: else if the value is  $a > 0$  is true. The statement inside the body of else if skippe if and else . The num is positive
7. step 7: If and else if statement is False then the else statement is executive . The num is zero.
8. step 8: End .

Code:

```
#include <stdio.h>
int main()
{
    int a;
    printf ("Enter the number :");
    scanf ("%d", &a);
    if (a < 0)
        printf ("The number is negative :");
    else if (a > 0)
        printf ("%d the number is positive :");
    else
        printf ("%d the number is zero :");
    return 0;
}
```

Result:

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
PS D:\SCHESTER 2\CSCE 104 LAB\Report\Lab> cd "D:\SCHESTER 2\CSCE 104 LAB\Report\Lab"
PS D:\SCHESTER 2\CSCE 104 LAB\Report\Lab> cd "D:\SCHESTER 2\CSCE 104 LAB\Report\Lab"
Enter number:
10
10 'is a positive.'
PS D:\SCHESTER 2\CSCE 104 LAB\Report\Lab>
```

Analysis: It is a if...else ladder statement. If statement is true then print if part and if it is false print else if part. Otherwise print else part. In this program I do not face any problem.

Problem 03: Write a C program to check whether number is odd or even.

Algorithm:

1. step 1: Start
2. step 2: Declair a int variable 'a'.
3. step 3: Display give a message on the monitor.  
"Enter number".
4. step 4: Read 'a'.
5. step 5: If the number ( $a \% 2 != 0$ ) the statement is true the value is inside the if body and skipped else statement and executive.  
'a' is a odd number.
6. step 6: If the ( $a \% 2 == 0$ ) is false the statement does not inside the body of if . It is inside the body of else and executive.  
'a' is a even number.
7. Step 7: End.

(6)

Code:

```
#include <stdio.h>
int main()
{ int a;
printf ("Enter the number :");
scanf ("%d", &a);
if (a%2 != 0)
printf ("%d is a odd number :");
else
printf ("%d is a even number :");
return 0;
}
```

Result:

```
PS D:\SEESTER 2\GSE 103 LAB\WEEK-1\Lab
PS D:\SEESTER 2\GSE 103 LAB\WEEK-1\Lab
Enter any number: 1254
1254 num is even :
PS D:\SEESTER 2\GSE 103 LAB\WEEK-1\Lab
```

Analysis: It is a "if... else" condition if statement is true than inside the if body and printf. Otherwise it is inside else body and printf it. In this program, I do not face any problem.

Problem 04: Write a C program to check whether a number is divisible by 5 and 11 or not.

Algorithm:

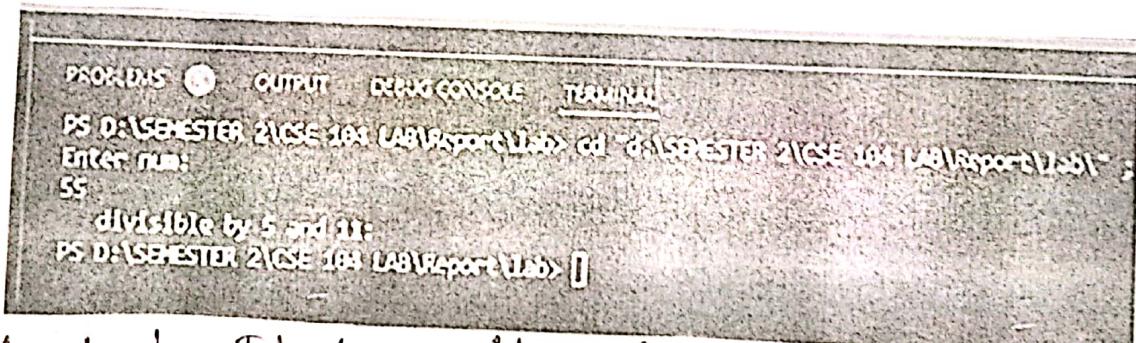
1. Step 1: start
2. step 2: declare a int variable 'num':
3. Step 3: Display give a message on the monitor.  
"Enter number:".
4. step 4: read 'num'.
5. step 5: If  $(\text{num} \% 5 == 0 \&\& \text{num} \% 11 == 0)$  is true
  - The statement inside the body of if and skip
  - else and execute. divisible 5 and 11.
6. step 6: If the condition is false the state
  - ment skip if and inside else statement
  - ent and execute. Do not divisible 5 and 11.
7. step 7: End.

(8)

Code:

```
#include <stdio.h>
int main()
{ int num;
printf("Enter num:");
scanf("%d", &num);
if (num%5 == 0 && num%11 == 0)
    printf(" divisible by 5 and 11:\n");
else
    printf(" not a divisible :\n");
return 0;
}
```

Result:



Analysis: It is a if...else statement if statement is true then print if part. Otherwise if condition is false it is print else part. Finally, I do not face any problem in these program.

Problem 05: Write a C program to find maximum between three numbers.

Algorithm:

1. step 1: start
2. step 2: declare a int variable 'a', 'b', 'c'.
3. step 3: Display show message "Enter three num:"
4. step 4: read 'a'.
5. step 5: read 'b'.
6. step 6: read 'c'.
7. step 7: If the num ( $a > b \&\& a > c$ ) is true. The statement inside the body of if and skip all and executive 'a' is the max num.
8. step 8: else if ( $b > a \&\& b > c$ ) is true. The statement skip if and enter else if body skipped else and executive 'b' is the max num.
9. step 9: If and else if condition is false then only else statement enter and executive 'c' is the max num.
10. step: End.

Code:

```
#include <stdio.h>
int main()
{ int a, b, c;
printf("Enter three numbers : \n");
scanf("%d%d%d", &a, &b, &c);
if ( a>b && b>c)
printf ("The number of a is the maximum number: %d\n", a);
else if ( b>a && a>c)
printf ("The number of b is the maximum number: %d\n", b);
else
printf ("The number of c is the maximum number: %d\n", c);
return 0;
}
```

Result :

```
PS-D:\X-ESTER\21\ESTER\LAB\Report1\FB
PS-D:\X-ESTER\21\ESTER\LAB\Report1\FB> cd "D:\X-ESTER\21\ESTER\LAB\Report1\FB"
PS-D:\X-ESTER\21\ESTER\LAB\Report1\FB> Enter three numbers
20
25
29
The number of c is the maximum number: 29
PS-D:\X-ESTER\21\ESTER\LAB\Report1\FB>
```

Analysis: This is a if ladder I used if the condition is true then point if part and skip else if. Then if condition is false but else if condition is true point else if part . Otherwise point else part of the program. In this I do not face a problem.

Problem 06: Write a C program to take a input from user as any alphabet and check whether it is vowel or consonant.

Algorithm:

1. step 1: start
2. step 2: declare a char variable 'ch'.
3. step 3: Display give a message "Enter any character"
4. step 4: read 'ch'.
5. step 5: switch (ch) check case 'a', 'e', 'ö', 'o', 'u', 'A', 'E', 'I', 'O' and 'U'; then the value is vowels.  
Then break and executive.
6. step 6: We define do not fine case i. Then  
default is constant break and  
executive.
7. step 7: End.

Code:

```

#include <stdio.h>
int main()
{
    char ch;
    printf("Enter any character: \n");
    scanf("%c", &ch);
    switch(ch)
    {
        case 'a':
        case 'e':
        case 'i':
        case 'o':
        case 'u':
        case 'A':
        case 'E':
        case 'I':
        case 'O':
        case "U":
            printf("vowel:");
            break;
        default:
            printf("consonant:");
            break;
    }
    return 0;
}

```

Result:

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
PS D:\SEMESTER 2\CSE 104 LAB\Report\Lab> cd "d:\SEMESTER 2\CSE 104 LAB\Report\Lab\"  
Enter any character:  
e  
Vowel:  
PS D:\SEMESTER 2\CSE 104 LAB\Report\Lab>
```

Discussion and Analysis: It is a switch statement. If a switch statement is true than the print a switch condition value. On the other hand, switch statement is false than print default value and end. In these program I do not face any problem.

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Problem 07: Write a program to check whether a year is leap year or not.

Algorithm:

1. Step 1: start
2. Step 2: declare a int variable 'year'.
3. Step 3: Display give a message "Enter year".
4. Step 4: read 'year'.
5. Step 5: If the yr is  $(yr \% 400 == 0) \text{ || } (yr \% 100 != 0 \& \& yr \% 4 == 0)$  is true. Then statement inside the body of if and skipped else and executive. leap year.
6. Step 6: If condition is False than skip if body we go to the else statement and executive. Not a leap year.
7. Step 7: End.

(14)

Code:

```
#include <stdio.h>
int main()
{
    int year;
    printf("Enter year: ");
    scanf("%d", &year);
    if ((year%400 == 0) || (year%100 != 0 && year%4 == 0))
        printf("%d year is the leap year\n", year);
    else
        printf("%d year is not leap\n", year);
    return 0;
}
```

Result :

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
PS D:\SEMESTER 2\CSE 104 LAB\Report\Lab> cd "d:\SEMESTER 2\CSE 104 LAB\Report\Lab"
PS D:\SEMESTER 2\CSE 104 LAB\Report\Lab> cd "d:\SEMESTER 2\CSE 104 LAB\Report\Lab\"
Enter year:
2012
2012 year is the leap
PS D:\SEMESTER 2\CSE 104 LAB\Report\Lab>
```

Analysis : It is a "if...else" statement. If the condition is true then it body inside and print. Otherwise it inside else body and print. This program I do not have a problem.