Department of Computer Science & Engineering

Problem Solving with C Laboratory-UE19CS152

Week-3

OBJECTIVE:Students will learn operators and its usage.Time taken to execute the given program and usage of control structure- selection statements.

1) Write a Program to swap two variables without using another variable.

Hint: Use of Arithmetic Operators, Bitwise Operators.

Output:

Before Swapping: x = 10, y = 20

After Swapping: x = 20, y = 10

2) Write a C program using bitwise operators for the following:

i) check whether specified bit is set or not

ii) set the specified bit and print the result

iii) clear the specified bit and print the result

Output:

For Example-

a)Enter the number which you want check

25

Input number is 25

Enter the bit position, starts from zero

2

bit is not set

Enter the bit position, which you want to set

4

set : 16

The number after set is 25

Enter the bit position, which bit you want to clear

3

set : 0

The number after clear is 17

b) Enter the number which you want check

23

Input number is 23

Enter the bit position, starts from zero

0

bit is set

Enter the bit position, which you want to set

3

set : 0

The number after set is 31

Enter the bit position, which bit you want to clear

4

set : 0

The number after clear is 15

3) Write a program to check a number is even or odd using

i) conditional operator

ii) bitwise operator

Output:

Input an integer

4

Even

Input an integer

5

Odd

4) Write a program to validate a given date; find the next date.

Output:

i)

Enter the date 12

Enter the month 12

Enter the year 2000

Date is valid & next date is: 13/12/2000

ii)

Enter the date 1

Enter the month 13

Enter the year 2000

Month is invalid

5) Write a C program to design calculator with basic operations using switch statement.

Output:

Enter the value of a and b

3

4

Enter the choice

+

Addition

7

Enter the value of a and b

3

0

Enter the choice

/

Division

divide by zero error

6) Program to measure the time taken to execute the given program

```
#include <stdio.h>
#include <time.h>
int main(void)
{
```

```
    clock_t start; clock_t end;
    // Store start time
    start = clock();
    /*add few instructions here i.e, for example give any previous program logic and compute  the time taken*/
    char c;
    printf("Enter any character\n");
    scanf("%c",&c);
    end = clock();
    // Get the time taken by program to execute in seconds
    double duration = ((double)end - start)/CLOCKS_PER_SEC;
    printf("Time taken to execute in seconds : %f", duration);
    return 0;
}
```

Output:

For Example-

Enter any character

d

Time taken to execute in seconds : 0.000101

Practice Programs:

1. Write a program to find the roots of a quadratic equation.
2. Write a program to display suitable grade of a student based on percentage.

    FCD= percentage >=70

    FC= percentage < 70 && percentage >= 60

    SC= percentage < 60 && percentage >= 35

    Fail = percentage < 35