 **COMSATS University Islamabad**

**Department of Computer Engineering**

**LAB #4**

**Programming Fundamentals**

**The If-Statement**

Instructor:

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Section: 2A

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**Objective:**

The objective of this lab is to make student understand that how C language is able to perform different set of actions on different circumstances and how to use Relational, and Conditional Operators respectively while playing around with decision taking activity.

**Lab task 1:**

Any integer is input through the keyboard. Write a program to find out whether it is an odd number or even number.

**Program:**

#include <stdio.h>

#include <stdlib.h>

int main()

{

int a;

printf("Enter a number: %d", a);

scanf("%d", &a);

if(a%2==0)

printf("%d is even ", a);

else

printf("%d is odd ", a);

return 0;

}

**Result:**

Enter a number: 09

9 is odd

**Lab task 2:**

A five-digit number is entered through the keyboard. Write a program to obtain the reversed number and to determine whether the original and reversed numbers are equal or not.

**Program:**

#include <stdio.h>

#include <stdlib.h>

int main()

{

int x, r=0, d, o;

printf("Enter a 5-digit number: ");

scanf("%d", &x);

if((x<100000)&&(x>9999))

{

o = x;

while(x != 0)

{

d= x % 10;

r = (r \* 10) + d;

x = x / 10;

}

printf("Reversed number: %d", r);

}

else

printf("Wrong input");

return 0;

}

**Result:**

Enter a 5-digit number: 53756

Reversed number: 65735

**Lab task 3:**

Any year is input through the keyboard. Write a program to determine whether the year is a leap year or not.

**Program:**

#include <stdio.h>

#include <stdlib.h>

int main()

{

int y=0;

printf("Enter an year: ");

scanf("%d", &y);

if(((y%4==0)||(y%400==0))&&(y%100!=0))

{

printf("%d is a leap year", y);

}

else

printf("%d is not a leap year", y);

return 0;

}

**Result:**

Enter an year: 2024

2024 is a leap year

**Lab task 4:**

Write a program using conditional operators to determine whether a year entered through the keyboard is a leap year or not.

**Program:**

#include <stdio.h>

#include <stdlib.h>

int main()

{

int y=0;

printf("Enter an year: ");

scanf("%d", &y);

if(((y%4==0)||(y%400==0))&&(y%100!=0))

{

printf("%d is a leap year", y);

}

else

printf("%d is not a leap year", y);

return 0;

}

**Result:**

Enter an year: 1999

1999 is not a leap year

**Lab task 5:**

If the ages of X, Y and Z are input through the keyboard, write a program to determine the youngest of three. 5.2. 5.3 5.4.

**Program:**

#include <stdio.h>

#include <stdlib.h>

int main()

{

int X; int Y; int Z;

printf("Age of X: ");

scanf("%d", &X);

printf("Age of Y: ");

scanf("%d", &Y);

printf("Age of Z: ");

scanf("%d", &Z);

if ((X<Z)&&(X<Y))

printf("X is youngest", X);

else if (Y<Z)

printf("Y is youngest", Y);

else

printf("Z is youngest", Z);

return 0;

}

**Result:**

Age of X: 6

Age of Y: 8

Age of Z: 5

Z is youngest

**Lab task 6:**

Write a program to check whether a triangle is valid or not, when the three angles of the triangle are entered through the keyboard. A triangle is valid if the sum of all the three angles is equal to 180 degrees.

**Program:**

#include <stdio.h>

#include <stdlib.h>

int main()

{

int a; int b; int c;

printf("Enter side A: ");

scanf("%d", &a);

printf("Enter side B: ");

scanf("%d", &b);

printf("Enter side C: ");

scanf("%d", &c);

if (a+b+c==180)

printf("Triangle is valid");

else

printf("Triangle is invalid");

return 0;

}

**Result:**

Enter side A: 90

Enter side B: 50

Enter side C: 40

Triangle is valid

**Lab task 7:**

Find the absolute value of a number entered through the keyboard.

**Program:**

#include <stdio.h>

#include <stdlib.h>

int main()

{

int x; int a;

printf("Enter a number: ");

scanf("%d", &x);

a= abs(x);

printf("Absolute value of %d = %d", x,a);

return 0;

}

**Result:**

Enter a number: -9

Absolute value of -9 = 9

**Lab task 8:**

Write a program to find the greatest of the three numbers entered through the keyboard using conditional operators.

**Program:**

#include <stdio.h>

#include <stdlib.h>

int main()

{

int x; int y; int z;

printf("Enter first number x: ");

scanf("%d", &x);

printf("Enter second number y: ");

scanf("%d", &y);

printf("Enter third number z: ");

scanf("%d", &z);

if ((x>y)&&(x>z))

printf("x is largest", x);

else if (y>z)

printf("y is largest", y);

else

printf("z is largest", z);

return 0;

}

**Result:**

Enter first number x: 6

Enter second number y: 9

Enter third number z: 3

y is largest

**Conclusion:**

In this lab, we used if-else statement to solve multiple problems and got ourselves familiar with the uses of if-else conditional statement. We also got to know how to apply multiple conditions in if statement at the same time.