**LAB # 5**

**OBJECT**

***DECISION MAKING IN PROGRAMMING USING IF ELSE STRUCTURE***

**THEORY**

Normally, your program flows along line by line in the order in which it appears in your

Source code. But, it is sometimes required to execute a particular portion of code only if

Certain condition is true; or false i.e. you have to make decision in your program. There are three major decision making structures. Four decision making structures:

1. If statement

2. If-else statement

3. Switch case

**The if statement**

The if statement enables you to test for a condition (such as whether two variables are equal) and branch to different parts of your code, depending on the result.

The simplest form of an if statement is:

**if (expression)**

**Statement**

The expression may consist of logical or relational operators like (> >= < <= && ||)

**Example-1**

void main(void)

{

int var;

printf(“Enter any number;”);

scanf(“%d”,&var);

if(var==10)

printf(“The user entered number is Ten”);

}

**The if-else statement**

Often your program will want to take one branch if your condition is true, another if it is false. The keyword else can be used to perform this functionality:

**if (expression)**

**statement;**

**else**

**statement;**

Note: To execute multiple statements when a condition is true or false, parentheses are used.

**Example-2**

Consider the following example that checks whether the input character is an upper case or lower case:

void main(void)

{

char ch;

printf(“Enter any character”);

ch=getche();

if(ch>=’A’&&ch<=’Z’)

printf(“%c is an upper case character”,ch);

else

printf(“%c is a lower case character”,ch);

getch();

}

**Nested ‘if else’ statement**

Nesting ‘if else’ statement means that one ‘if else construct is a part of other. When an ‘if’ statement is the target of another ‘if’ or ‘else’, it is said to be nested within the outer ‘if’.

***Which ‘if’ is associated with the ‘else’?***

When you see a nested ‘if else’ structure, question may arise that which ‘if’ is getting ‘else’ statement. The answer is very simple an ‘else’ always associates with the nearest ‘if’ within the same block.

**Nested structure**

It is possible to string together several ‘if’ and ‘else’. Such construct is called ‘if – else- if ladder’ or ‘if – else stair case’. In this condition a nested ‘if’ has as its target another ‘if’. The general form of nested ‘if else’ structure is as follows:

***if ( expression )***

***statement;***

***else***

***if ( expression )***

***statement;***

***else***

***if ( expression )***

***statement;***

***………………***

***else***

***statement;***

The conditions are evaluated from top downward fashion. As soon as a true condition is found, the statement associated with it is executed and the rest of the ladder is bypassed. If none of the condition is true, the final ‘else’ will be executed. If the final ‘else’ is not present, no action will be performed.

**TASKS TO BE PERFORMED**

1. Mention the output for the following program:

#include<stdio.h>

void main()

{

int a=100;

if(a>10)

printf("Shahid Afridi");

else if(a>20)

printf("Shoaib Akhtar");

else if(a>30)

printf("Kamran Akmal");

}

# OUTPUT

After fixing “void main( )” to “int main( )” you will get the output:

"Shahid Afridi"

2. Write a program that takes a number as input from user and checks whether the

Number is even or odd.

Using if-else:

# PROGRAM

#include <stdio.h>

int main(){

int n;

printf("Enter any number: ");

scanf("%d",&n);

if(n%2==0){

printf("the value is an even number");

}

else{

printf("the value is an odd number");}

getch();

}

3. Write a program that declares and initializes two numbers with your\_roll\_no and

your\_friend\_roll\_no and displays the greater of the two.

# PROGRAM

#include<stdio.h>

int main(){

int a[50],i,big,small,size;

printf("How many form numbers: ");

scanf("%d",&size);

printf("\nEnter %d form numbers:\n", size);

for(i=0;i<size;i++)

scanf("%d",&a[i]);

big=a[0];

for(i=1;i<size;i++)

if(big<a[i])

big=a[i];

printf("\nThis form number is greater: %d",big);

small=a[0];

for(i=1;i<size;i++)

if(small>a[i])

small=a[i];

printf("\nThis form number is smaller: %d",small);

return 0;

}