**Answers to Lab Exercise - 5**

1. Write a C program to perform a desired arithmetic operation using switch statement and

declaring choice as char data type.

#include<stdio.h>

#include<conio.h>

#include<stdlib.h>

void main()

{

float a=0, b=0, result=0;

char opcode;

clrscr();

printf("Enter 2 Numbers");

scanf("%f%f",&a,&b);

fflush(stdin);

printf("\nEnter + to add\n - to subtract\n \* to multiply\n / to divide");

scanf("%c",&opcode);

switch(opcode)

{

case '+':

result = a+b;

printf("\nSum of %f & %f is : %f", a,b,result);

break;

case '-':

result = a-b;

printf("\nSubtraction of %f & %f is : %f", a,b,result);

break;

case '\*':

result = a\*b;

printf("\nMultiplication of %f & %f is : %f", a,b,result);

break;

case '/':

if(b==0)

{

printf("Divide By Zero Error\n");

exit(0);

}

else{

result = a/b;

printf("\nDivision of %f & %f is : %f", a,b,result);

}

break;

default: printf("\nInvalid Operator");

}

getch();

}

1. Write a C program to find roots of a quadratic equation using switch statement.

#include <stdio.h>

#include <math.h>

#include <conio.h>

void main( )

{

float a, b, c;

float disc, root1, root2;

float real, imag;

int ch=0;

clrscr();

printf("\n Enter the Coefficients of the Equation : ax2+bx+c=O ? : ");

scanf("%f%f%f",&a, &b, &c);

if( a == 0 || b == 0 || c == 0) /\* Check for non-zero coefficients \*/

printf("\n\n Error: Coefficients value must be Non-Zero...");

else

{

disc = b \* b - 4 \* a \* c;

if(disc < 0 )

ch = 1;

else if( disc == 0 )

ch = 2;

else

ch = 3;

switch(ch)

{

case 1:

/\* Case: imaginary roots \*/

printf("\n\n Roots are Imaginary...");

real = -b / (2 \* a);

imag = sqrt(fabs(disc)) / (2 \* a);

printf("\n\n Complex Root1 = %7.4f +i %7.4f",real, imag);

printf("\n Complex Root2 = %7.4f -i %7.4f",real, imag);

break;

case 2:

/\* Case: real and identical roots \*/

printf("\n\n Roots are Real & Identical...");

root1 = -b / (2 \* a);

root2 = root1;

printf("\n\n Root1 = %7.4f",root1);

printf("\n Root2 = %7.4f",root2);

break;

case 3:

/\* Case: real and distinct roots \*/

printf("\n\n Roots are Real & Distinct...");

root1 = (-b + sqrt(disc)) / (2 \* a);

root2 = (-b - sqrt(disc)) / (2 \* a);

printf("\n\n Root1 = %7.4f",root1);

printf("\n Root2 = %7.4f",root2);

break;

default:

printf("Invalid Choice");

} /\*End of Switch\*/

}

getch();

} /\* End of main( ) \*/

1. Write a C program to find whether given alphabet is vowel or consonant using switch.

#include<stdio.h>

#include<conio.h>

void main()

{

char ch;

clrscr();

printf("Enter the alphabet\n");

ch=getchar();

switch(ch)

{

case 'a':

case 'e':

case 'i':

case 'o':

case 'u':

case 'A':

case 'E':

case 'I':

case 'O':

case 'U':

printf("Alphatbet is vowel");

break;

default: printf("Alphabet is consonant");

}

getch();

}

1. Write a C program to find area of a triangle/square/circle/rectangle using switch statement.

#include<stdio.h>

#include<conio.h>

#define PI 3.147

void main()

{

float radius = 0, length = 0, breadth = 0;

float base = 0, height = 0, area = 0;

int choice = 0;

clrscr();

printf("Enter \n1 to find area of triangle\n2 to find area of Square");

printf("\n3 to find area of circle\n4 to find area of rectangle\n");

scanf("%d",&choice);

switch(choice)

{

case 1:

printf("\nEnter base & height of a triangle");

scanf("%f%f",&base,&height);

area = (1.0/2)\*base\*height;

printf("\nArea of Triangle : %f", area);

break;

case 2:

printf("\nEnter length of a Square");

scanf("%f",&length);

area = length \* length;

printf("\nArea of Square : %f", area);

break;

case 3:

printf("\nEnter the radius of a Circle");

scanf("%f",&radius);

area = PI \* radius \* radius;

printf("\nArea of Circle : %f", area);

break;

case 4:

printf("\nEnter the length & breadth of a Rectangle");

scanf("%f%f",&length,&breadth);

area = length \* breadth;

printf("\nArea of Rectangle : %f", area);

break;

default:

printf("\nInvalid Choice");

}

getch();

}

1. Write a C program to find grade of a student using switch statement.

#include<stdio.h>

#include<conio.h>

void main()

{

int a,b,c,d,e,f,total,per=0,ch;

clrscr();

printf("Enter the marks in 6 subjects\n");

scanf("%d%d%d%d%d%d",&a,&b,&c,&d,&e,&f);

if((a<40)||(b<40)||(c<40)||(d<40)||(e<40)||(f<40))

printf("Grade is F");

else

{

total=a+b+c+d+e+f;

per=total/6;

printf("total = %d\n",total);

printf("per=%d\n",per);

ch=per/10;

switch(ch)

{

case 10:

case 9:

case 8: printf("Grade is S");

break;

case 7: printf("Grade is A");

break;

case 6: printf("Grade is B");

break;

case 5: printf("Grade is C");

break;

case 4:printf("Grade is D");

break;

default: printf("Invalid marks");

}

}

getch();

}

1. Write a program to evaluate the square root for five numbers using goto statement.

#include<math.h>

#include<stdio.h>

#include<conio.h>

void main()

{

int x,y;

int count;

clrscr();

count=1;

printf("Enter Five Real values in a line\n");

read:

scanf("%d",&x);

if(x<0)

{

printf(“Entered Value is negative\n”);

goto negative; //forward jump

}

else

{

y=sqrt(x);

printf("x=%d\tsqrt(x)=%d\n",x,y);

}

negative:

count=count+1;

if(count<=5)

goto read; // backward jump

printf("\n End of computation\n");

getch();

}