CHAPTER NO 5 EXERCISE SOLUTIONS

MADE BY ALI AKBER

BSCS IST SELF (SS1)

Qno1:

Write a program that accepts a character and determines whether the character is a lowercase letter. A lowercase letter is any character that is greater than equal to 'a and less than or equal to z. If the entered character is a lowercase letter, display the message "Entered character is a lowercase letter", otherwise display the message "Entered character is not a lowercase letter".

```
#include<iostream>

using namespace std;

int main()

{

   char ch;

cout<<"enter any character"<<endl;

cin>>ch;

if (ch>='a' && ch<='z')

{

cout<<"Entered character is a lowercase letter."<<endl;

}

else

cout<<"Entered character is not a lowercase letter."<<endl;


     return 0;

}
```

Qno2:

Senior salesperson is paid Rs. 400 a week, and a junior salesperson is paid Rs. 275 a week. Write a program that accepts as input a salesperson's status in the character variable status. If status is 's' or 'S', the senior person's salary should be displayed; if status is '' or '', the junior person's salary should be displayed, otherwise display error message.

```
#include<iostream>

using namespace std;

int main()

{


char status;

cout<<"enter your status\n<<enter 's' for Juniors sale person\n<<enter 'j' for junior sales person\n";

cin>>status;

if (status=='s' || status=='S')

cout<<"your salary is Rs/400 per week"<<endl;

if (status=='j' || status=='J')

cout<<"your salary is Rs/275 per week"<<endl;

else

cout<<"you have put invalid character"<<endl;



    return 0;

}
```

Qno3:

Write a program to get three numbers from user for integer variables a, b and c. Ita is not zero, find out whether it is the common divisor of b and c.

```
#include<iostream>

using namespace std;

int main()

{


int a,b,c;

cout<<"input 3 numbers"<<endl;

cin>>a>>b>>c;

if (a!=0 && b%a==0 && c%a==0)

cout<<"a is common divisor of b and c"<<endl;

else

cout<<"a is not a common divisor of b and c"<<endl;




    return 0;

}
```

Qno4:

Write a program that contains an if statement that may be used to compute the area of a square (area = side side) or a triangle (area= ½ base height) after prompting the user to type the first character of the figure name (S or T).

```
#include<iostream>

using namespace std;

int main()

{


char opt;

float    base,height;

cout<<"enter base"<<endl;

cin>>base;

cout<<"enter height"<<endl;

cin>>height;

cout<<"enter option 'T' for triangle and s for square"<<endl;

cin>>opt;

if (opt=='S' || opt=='s')

cout<<"calculate area of square"<<base*base<<endl;

if (opt=='T' || opt=='t')

cout<<"calculate area of triangle"<<(base*height)/2<<endl;


    return 0;

}
```

Qno5:

Write a program that gets the number and a letter. If the letter is f, the program should treat the number entered as temperature in degrees Fahrenheit and convert it to the temperature in degree Celsius and print a suitable message. If the letter is c the program should consider the number as Celsius temperature and convert it to Fahrenheit temperature and print a suitable message. The program should display error message and then exit if the user enters any other letter.

```
#include<iostream>
using namespace std;
int main()
{
float f,c;
char opt;
cout<<"enter c for Celsius and f for Farhenhit"<<endl;;
cin>>opt;
if (opt=='f')
{
cout<<"enter temperature in Fahrenheit"<<endl;
cin>>f;
cout<<"temperature in Celsius is "<<5*(f-32)/9<<endl;
}
if (opt=='c')
{
cout<<"enter temperature in Celsius"<<endl;
cin>>c;
cout<<"temperature in Farhenhit is "<<c*9/5+32<<endl;
}
else
cout<<"you have enter invalid character"<<endl;
```

```
  return 0;
}
```

QNO6:

Write a program that accepts the code number as an input and display the correct disk drive manufacturer as follows.

1.	**Disk drive manufacturer**
2.	**Western digital**
3.	**Maxell corporation**
4.	**Sony Corporation**
5.	**Verbatim Corporation**

```
#include<iostream>
using namespace std;
int main()
{
int cd;
cout<<"enter code for disk drive manufacturer"<<endl;
cin>>cd;
if (cd==1)
cout<<" disk drive manufacture"<<endl;
if (cd==2)
cout<<"Western digital"<<endl;
if (cd==3)
cout<<"Maxell corporation"<<endl;
```

```
if (cd==4)
cout<<"Sony Corporation"<<endl;
if (cd==5)
cout<<"Verbatim Corporation"<<endl;
if (cd>5)
cout<<"you have put an invalid code"<<endl;




  return 0;
}
```

Qno7

Write a program that uses the following categories of movies:

A for Adventure movies

C for Comedy movies .

F for Family movies

H for Horror movie

S for scientific fiction movies

The program inputs code for movie type and displays its category. For example if the user enters H, it displays "Horror Movies". The program should also display a menu of movie categories.

```
#include<iostream>
```

```
using namespace std;

int main()

{

char cd;

cout<<"Choose any movie category\n<<Adventure movies\n<<Comedy movies \n<<Family movies
\n<<horror movies \n<<scientific fiction movies \n"<<endl;

cout<<"enter code for movies categories"<<endl;

cin>>cd;

switch(cd)

{

case 'A':

cout<<" Adventure movies"<<endl;

break;

case 'C':

cout<<"Comedy movies"<<endl;

break;

case 'F':

cout<<"Family movies"<<endl;

break;

case 'S':

cout<<"Scientific fiction movies"<<endl;

break;

case 'H':

cout<<"Horror movies"<<endl;

break;

default:
```

```
cout<<"you have put an invalid code"<<endl;
}
```

```
 return 0;
}
```

Qno8:

Write a program that inputs a value and type of conversion. The program should then output the value after conversion. The program should include the following conversions:

1 inch = 2.54 centimeters

1 gallon =3.785 liters

1 mile =1.609 kilometers

1 pound =0.4536 kilograms

Make sure that program accepts only valid choices for type of conversions to perform.

```
#include<iostream>
using namespace std;
int main()
{

char conv;
float numb,result;
cout<<"enter any conversation\n<<inches to centimeters\n<<gallons into litres\n<<mile into kilometers
```

```
\n<<pounds into kilograms \n"<<endl;
cin>>conv;
switch(conv)
{
case 'A':
cout<<" enter value in inches"<<endl;
cin>>numb;
cout<<"value in inches is:"<<2.54*numb<<endl;
break;
case 'B':
cout<<" enter value in gallons"<<endl;
cin>>numb;
cout<<"value in gallons is:"<<3.785*numb<<endl;
break;
case 'C':
cout<<" enter value in miles"<<endl;
cin>>numb;
cout<<"value in miles is:"<<1.609*numb<<endl;
break;
case 'D':
cout<<" enter value in pounds"<<endl;
cin>>numb;
cout<<"value in pounds is:"<<0.4536*numb<<endl;
break;
default:
cout<<"you have put an invalid code"<<endl;
```

```
}
```

```
  return 0;
}
```

Qno9:

A year is a leap year if it is divisible by four, except that any year divisible by 100 is a leap year only if it is divisible by 400. Write a program that inputs a year such as 1996, 1800 and 2010 and display "Leap year" if it is a leap year otherwise displays "Not a leap year".

```
#include<iostream>
using namespace std;
int main()
{
int year;
cout<<"enter any year"<<endl;
cin>>year;
if (year%4==0 || year%100==0 && year%400==0)
cout<<"enter year is a leap year"<<endl;
else
cout<<"enter year is not a leap year"<<endl;
  return 0;
}
```

QNO10:

Write a program that inputs temperature and display message as follows:

Temperature	Message
Greater than 35	Hot day
Between 25 and 35 (inclusive)	Pleasant day
Less than 25	Cool day

```
#include<iostream>

using namespace std;

int main()

{

int temp;

cout<<"enter temperature"<<endl;

cin>>temp;

if (temp>35)

cout<<"Hot day"<<endl;

else if (temp>=25 && temp<=35)

cout<<"Pleasent Day"<<endl;

else

cout<<"Cool Day"<<endl;



  return 0;

}
```

QNO11:

Write a program that inputs obtained marks of a student,calculates percentage (assuming total marks are 1100) and display grade according to the following rules:

Percentage	Grade
More than or equal to 80	A+
Between 70 (inclusive) and 80	A
Between 60 (inclusive) and 70	B
Between 50 (inclusive) and 60	C
Between 40 (inclusive) and 50	D
Between 33 (inclusive) and 40	E
Less than 33	F

```
#include<iostream>

using namespace std;

int main()

{

int marks;

float percentage;

cout<<" enter student marks"<<endl;

cin>>marks;

percentage=(marks/1100.0f)*100;

cout<<"student percentage is"<<percentage<<endl;

if (marks>=0 && marks<=1100)

{

if (percentage>=80)

cout<<"Your grade is A+"<<endl;

else if (percentage>=70 && percentage<80)

cout<<"Your grade is A"<<endl;

else if (percentage>=60 && percentage<70)

cout<<"Your grade is B"<<endl;

else if (percentage>=50 && percentage<60)

cout<<"Your grade is C"<<endl;

else if (percentage>=40 && percentage<50)
```

```
cout<<"Your grade is D"<<endl;

else if (percentage>=33 && percentage<40)

cout<<"Your grade is E"<<endl;

else

cout<<"Your grade is F"<<endl;



}
```

```
  return 0;

}
```

Qno14:

Write a program that inputs the salary of an employee from the user. It deducts the income tax from the salary on the following basis:

20% income tax if the salary is above Rs. 30000..

15% income tax if the salary is between Rs. 20000 and Rs. 30000.

10% income tax if the salary is below Rs. 20000.

The program finally displays salary, income tax and the net salary.

```
#include<iostream>

using namespace std;

int main()

{
```

```
float salary,tax;
cout<<"input salary of employee"<<endl;
cin>>salary;
if (salary>=30000)
{
tax=(20/100.0f)*salary;
cout<<"income tax on the employee is"<<tax<<endl;
cout<<"net salary of the employee is"<<salary-tax<<endl;
}
else if (salary>=20000 && salary<30000)
{
tax=(15/100.0f)*salary;
cout<<"income tax on the employee is"<<tax<<endl;
cout<<"net salary of the employee is"<<salary-tax<<endl;
}
else
{
tax=(10/100.0f)*salary;
cout<<"income tax on the employee is"<<tax<<endl;
cout<<"net salary of the employee is"<<salary-tax<<endl;
}



return 0;
}
```

Qno15:

Write a program that inputs year and month. It displays the number of days in the month of the year entered by the user. For example, if the user enters 2010 in year and 3 in month, the program should display "March 2010 has 31 days.

```
#include<iostream>
using namespace std;
int main()
{
  int y,m,month,days;
cout<<"enter year"<<endl;
cin>>y;
cout<<"enter month"<<endl;
cin>>m;

if (m==1)
cout<<"January"<<y<< "has 31 days"<<endl;
else if (m==2)
{
if (y%4!=0)
cout<<"February"<<y<< "has 28 days"<<endl;
else
cout<<"February"<<y<<"has 29 days"<<endl;
}
else if (m==3)
cout<<"March"<<y<< "has 31 days"<<endl;
```

```
else if (m==4)
cout<<"April"<<y<< "has 30 days"<<endl;
else if (m==5)
cout<<"May"<<y<< "has 31 days"<<endl;
else if (m==6)
cout<<"June"<<y<< "has 30 days"<<endl;
else if (m==7)
cout<<"July"<<y<< "has 31 days"<<endl;
else if (m==8)
cout<<"August"<<y<<" has 31 days"<<endl;
else if (m==9)
cout<<"September"<<y<< "has 30 days"<<endl;
else if (m==10)
cout<<"October"<<y<< "has 31 days"<<endl;
else if (m==11)
cout<<"November"<<y<< "has 30 days"<<endl;
else if (m==12)
cout<<"December"<<y<< "has 31 days"<<endl;
else
cout<<"you have put invalid number of month"<<endl;
return 0;
}
```

Qno16:

Write a program that displays the following menu for a parking area:

M= Motorcycle

C =Car Bus

B=Bus

The program inputs the type of vehicle and number of days to park the vehicle. It finally displays the total charges for the parking according to the following:

Motorcycle Rs. 10 per day

Car Rs. 20 per day

Bus Rs. 30 per day

```
#include<iostream>
using namespace std;
int main()
{
    char ch;
int days,totcharges;
cout<<"Enter Menu\n<<Enter 'M'= Motorcycle\n<<Enter 'C'=Car\n<<Enter 'B'=Bus\n"<<endl;
cin>>ch;
cout<<"Enter Days you want to park the vehicle:";
cin>>days;
if(ch=='M')
{
totcharges=days*10;
cout<<"total charges for your vehicle parking is:"<<totcharges<<endl;
}
else if(ch=='C')
{
totcharges=days*20;
```

```
cout<<"total charges for your vehicle parking is:"<<totcharges<<endl;
}
else if(ch=='B')
{
totcharges=days*30;
cout<<"total charges for your vehicle parking is:"<<totcharges<<endl;
}

return 0;
}
```

Qno17:

Write a program that inputs a value and type of conversion. The program should then display the output after conversion. The program should include the following conversions:

cm = .394 inches

1 liter= .264 gallons

I kilometer = .622 miles

I kilogram = 2.2 pounds

Make sure that the program accepts only valid choices for the type of conversion.

```
#include<iostream>
using namespace std;
int main()
{
   char conv;
float numb;
```

```
cout<<"enter any conversation\n<<cm to inches\n<<litres to gallons\n<<kilometers to
miles\n<<kilograms to pounds \n"<<endl;

cin>>conv;

switch(conv)

{

case 'A':

cout<<" enter value in cm"<<endl;

cin>>numb;

cout<<"value in cm is:"<<0.394*numb<<endl;

break;

case 'B':

cout<<" enter value in litres"<<endl;

cin>>numb;

cout<<"value in litres is:"<<0.264*numb<<endl;

break;

case 'C':

cout<<" enter value in kilometers"<<endl;

cin>>numb;

cout<<"value in kilometers is:"<<0.622*numb<<endl;

break;

case 'D':

cout<<" enter value in kilograms"<<endl;

cin>>numb;

cout<<"value in kilograms is:"<<2.2*numb<<endl;

break;

default:
```

```
cout<<"you have put an invalid code"<<endl;

}




return 0;

}
```