

PROGRAMMING FUNDAMENTAL

ASSIGNMENT # 3

Question # 6

```
#include<iostream>
#include<iomanip> // for setw
using namespace std;
int main()
{
    int n; // variable declaration
    cout<<"Enter a positive Integer : ";
    cin>>n;
    cout<<"  ";
    for(int i=1 ; i<=n; i++)
    {
        cout<<setw(4)<<i;
    }
    cout<<endl;
    cout<<"  "<<"+";
    for(int j=1 ; j<=n; j++)
    {

        cout<<setw(4)<<"----";
    }
    cout<<endl;
    for(int k=1 ; k<=n; k++)
    {
        cout<<setw(2)<<k<<setw(2)<<"|";
```

```

        for(int m=1 ; m<=n;m++)
        {
            cout<<setw(4)<<k*m;

        }
        cout<<endl;
    }

    return 0;

}

```

Question # 7

```

#include<iostream>
using namespace std;
int main()
{
    int height,width;
    cout<<"Enter a Height : ";
    cin>>height;
    while(height%2==0 || height<3)
    {
        cout<<"ERROR!! Enter again Height : ";
        cin>>height;
    }
    cout<<"Enter a Width : ";
    cin>>width;
    while(width%2==0 || width<5)
    {

```

```
        cout<<"ERROR!! Enter again Width : ";
        cin>>width;
    }
    for(int i = 1; i<=height; i++)
    {
        for(int j = 1; j<=width; j++)
        {
            if(i%2==0) // Even Rows
            {
                if(j%2==0) // Even Columns
                {
                    cout<<" ";
                }
                else
                {
                    cout<<"+";
                }
            }
            else
            {
                cout<<"+";
            }
        }
        cout<<endl;
    }
    return 0;
}
```

Question # 8

```
#include <iostream>
using namespace std;
int main()
{
    int n;
    cout<<"Enter the size of square pattern : " ;
    cin>>n;
    while(n%2!=0||n<2)
    {
        cout<<"ERROR!!! Enter again size : ";
        cin>>n;
    }
    for(int i = 1;i<=n; i++)
    {
        for(int j=1;j<=n; j++)
        {
            if(j<i)
                cout<<"0";
            else
                cout<<"1";
        }
        cout<<endl;
    }

    return 0;
}
```

Question # 9

```
#include<iostream>
#include<iomanip>
using namespace std;
int main()
{
    const int SIDE_1 = 200;
    const int SIDE_2 = 200;
    const int HYPOTENUS = 200;
    cout<<"The all posible Pythagorean Triples range (0-200) are :
"<<endl<<endl;
    cout<<setw(10)<<"Side 1 "<<setw(12)<<"Side 2
"<<setw(12)<<"Hypotenuse"<<endl<<endl;
    for(int a = 1; a<=SIDE_1; a++) //for side 1
    {
        for(int b = a; b<=SIDE_2; b++) // for side 2
        {
            for(int c = 1; c<=HYPOTENUS; c++) //for hypotenuse
            {
                if(c*c==(a*a+b*b))
                {
                    cout<<setw(5)<<a<<setw(12)<<b<<setw(12)<<c<<endl;
                }
            }
        }
    }

    return 0;
}
```

Question # 10

(a)

```
#include<iostream>
using namespace std;
    //Function Prototypes/Declaration
double  calculateCharges(int,double,double,double);
double  calculateCharges(double,double);
int main()
{
    //User Selection
    cout<<"-----Select One----- "<<endl;
    cout<<"1-The Patient was admitted as inpatient "<<endl;
    cout<<"2-The Patient was admitted as outpatient "<<endl;
    //Variable declaration
    int choice;
    int days;
    double rate,medCharges,otherCharges;
    cin>>choice;
    switch(choice)
    {
        case 1:
            cout<<"Enter the number of days spent in the hospital : ";
            cin>>days;
            while(days<=0||days>31)
            {
                cout<<"Error!!Enter again number of days : ";
                cin>>days;
            }
        }
```

```

cout<<"Enter the daily Rate : ";
cin>>rate;
while(rate<=0)
{
    cout<<"Error!!Enter again daily rate : ";
    cin>>rate;
}
cout<<"Enter the Hospital medication charges : ";
cin>>medCharges;
while(medCharges<=0)
{
    cout<<"Error!!Enter again medication charges : ";
    cin>>medCharges;
}
cout<<"Enter the Hospital services charges : ";
cin>>otherCharges;
while(otherCharges<=0)
{
    cout<<"Error!!Enter again services charges : ";
    cin>>otherCharges;
}
cout<<"\n-----\n";
cout<<"Total days you stayed at hospital is "<<days<<endl;
cout<<"Your daily rate is "<<rate<<endl;
cout<<"Your hospital medication charges are "<<medCharges<<endl;
cout<<"Your hospital service charges are "<<otherCharges<<endl;
cout<<"Total Charges for Inpatient are
"<<calculateCharges(days,rate,medCharges,otherCharges);
break;

```

```

case 2:
    cout<<"Enter the Hospital services charges : ";
    cin>>otherCharges;
    while(otherCharges<=0)
    {
        cout<<"Error!!Enter again services charges : ";
        cin>>otherCharges;
    }
    cout<<"Enter the Hospital medication charges : ";
    cin>>medCharges;
    while(medCharges<=0)
    {
        cout<<"Error!!Enter again medication charges : ";
        cin>>medCharges;
    }
    cout<<"\n-----\n";
    cout<<"Your hospital service charges are "<<otherCharges<<endl;
    cout<<"Your hospital medication charges are "<<medCharges<<endl;
    cout<<"Total Charges for Outpatient are
"<<calculateCharges(otherCharges,medCharges);
    break;
default:
    {
        cout<<"Please Enter valid number for selection ";
    }
}

double calculateCharges(int a ,double b,double c,double d) // function define
{

```



```

    double totalCharges = ((a*b)+c+d);
    return totalCharges;

}

double calculateCharges(double y,double z) // function define
{
    double totalCharges = (y+z);
    return totalCharges;
}

```

(b)

```

#include<iostream>
#include<fstream>
using namespace std;
double calculateCharges(int,double,double,double);
double calculateCharges(double,double);
int main()
{
    ofstream outputFile; // var declare
    outputFile.open("Bill.txt"); // create file
    cout<<"-----Select One----- "<<endl;
    cout<<"1-The Patient was admitted as inpatient "<<endl;
    cout<<"2-The Patient was admitted as outpatient "<<endl;
    int choice;
    int days;
    double rate,medCharges,otherCharges;
    cin>>choice;
    switch(choice)

```

```

{
    case 1:
        cout<<"Enter the number of days spent in the hospital : ";
        cin>>days;
        while(days<=0||days>31)
        {
            cout<<"Error!!Enter again number of days : ";
            cin>>days;
        }
        cout<<"Enter the daily Rate : ";
        cin>>rate;
        while(rate<=0)
        {
            cout<<"Error!!Enter again daily rate : ";
            cin>>rate;
        }
        cout<<"Enter the Hospital medication charges : ";
        cin>>medCharges;
        while(medCharges<=0)
        {
            cout<<"Error!!Enter again medication charges : ";
            cin>>medCharges;
        }
        cout<<"Enter the Hospital services charges : ";
        cin>>otherCharges;
        while(otherCharges<=0)
        {
            cout<<"Error!!Enter again services charges : ";
            cin>>otherCharges;
        }
    }
}

```

```

    }

    if(outputFile.fail()) // file handling error
    {
        cout<<"ERROR!!";
    }
    else
    {
        cout<<"\n-----\n";
        cout<<"Total days you stayed at hospital is "<<days<<endl;
        cout<<"Your daily rate is "<<rate<<endl;
        cout<<"Your hospital medication charges are "<<medCharges<<endl;
        cout<<"Your hospital service charges are "<<otherCharges<<endl;
        cout<<"Total Charges for Inpatient are
"<<calculateCharges(days,rate,medCharges,otherCharges);
        outputFile<<"Here is the list of your Charges "<<endl<<endl;
        outputFile<<"Total days you stayed at hospital is "<<days<<endl;
        outputFile<<"Your daily rate is "<<rate<<endl;
        outputFile<<"Your hospital medication charges are
"<<medCharges<<endl;
        outputFile<<"Your hospital service charges are
"<<otherCharges<<endl;
        outputFile<<"Total Charges for Inpatient are
"<<calculateCharges(days,rate,medCharges,otherCharges);
        outputFile.close();
        break;
    }
case 2:
    cout<<"Enter the Hospital services charges : ";
    cin>>otherCharges;

```

```

while(otherCharges<=0)
{
    cout<<"Error!!Enter again services charges : ";
    cin>>otherCharges;
}
cout<<"Enter the Hospital medication charges : ";
cin>>medCharges;
while(medCharges<=0)
{
    cout<<"Error!!Enter again medication charges : ";
    cin>>medCharges;
}

if(outputFile.fail())
{
    cout<<"ERROR!!";
}
else
{
    cout<<"\n-----\n";
    cout<<"Your hospital service charges are "<<otherCharges<<endl;
    cout<<"Your hospital medication charges are "<<medCharges<<endl;
    cout<<"Total Charges for Outpatient are
"<<calculateCharges(otherCharges,medCharges);
    outputFile<<"Here is the list of your Charges "<<endl<<endl;
    outputFile<<"Your hospital service charges are
"<<otherCharges<<endl;
    outputFile<<"Your hospital medication charges are
"<<medCharges<<endl;

```

```

        outputFile<<"Total Charges for Outpatient are
"<<calculateCharges(otherCharges,medCharges);
        outputFile.close();
        break;
    }
    default:
    {
        cout<<"Please Enter valid number for selection ";
    }

}

return 0;
}

double calculateCharges(int a ,double b,double c,double d)
{
    double totalCharges = ((a*b)+c+d);
    return totalCharges;

}

double calculateCharges(double y,double z)
{
    double totalCharges = (y+z);
    return totalCharges;

}

```

