EXPERIMENT 1

- ASHISH KUMAR
- 2K18/SE/041

AIM:- Write a program to find the maximum in three numbers input by the user and generate test cases for the program using Boundary Value Analysis.

CODE:-

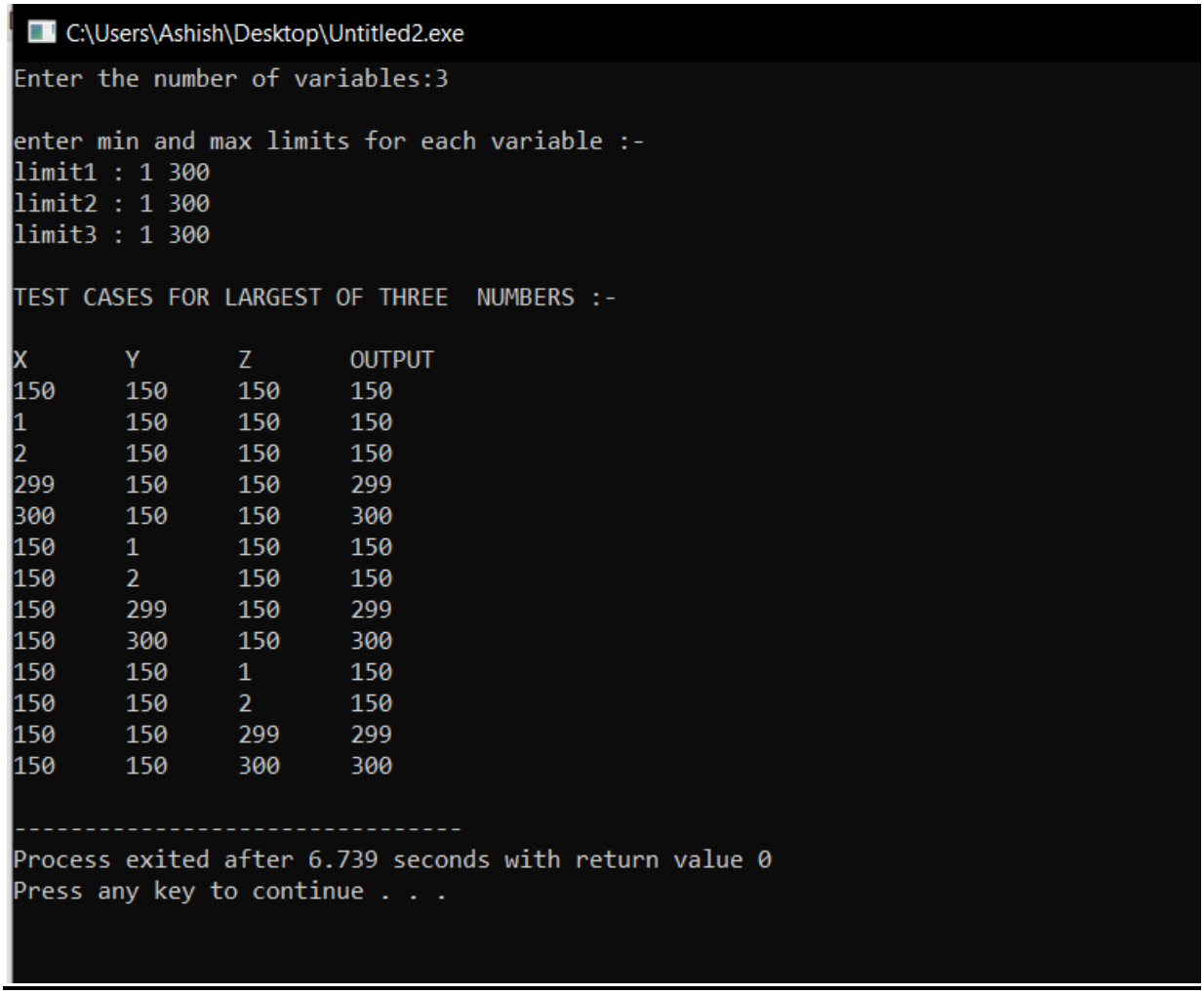
```
#include<bits/stdc++.h>

#include<iostream>

#include<algorithm>

using namespace std;


int main()

{

   int n,max;


     //3 variables

                cout<<"Enter the number of variables:";

                cin>>n;

                cout<<"\n enter min and max limits for each variable :-"<<endl;

                vector<int> low(n), high(n);

                for(int i=0; i<n; i++)

                {

                   cout<<"limit"<<i+1<<" : ";
```

```
    cin>>low[i]>>high[i];
  }

  cout<<endl;

  cout<<"TEST CASES FOR LARGEST OF THREE  NUMBERS :-\n"<<endl;

  vector<vector<int> > v(n);
  for(int i=0; i<n; i++)
  {
    int l = low[i], l2=low[i]+1, mid=(low[i]+high[i])/2, h2=high[i]-1, h=high[i];

    v[i].push_back(mid);
    v[i].push_back(l);
    v[i].push_back(l2);
    v[i].push_back(h2);
    v[i].push_back(h);

  }
cout<<"X\t";
cout<<"Y\t";
cout<<"Z\t";
cout<<"OUTPUT";
cout<<endl;
```

```
    for(int i=0; i<n; i++)
    {   if(i==0)
      {  cout<<v[i][0]<<"\t";
      max=v[i][0];
    } else
    {
                cout<<v[i][0]<<"\t";
                if(max<v[i][0])
                {
                   max=v[i][0];
                   }
                }
}
    cout<<max<<endl;

    for(int i=0; i<n; i++)
    {
       for(int j=0; j<4; j++)
       {
            vector<int> a(n);
            int idx=0;
           for(int k=0; k<n; k++)
           {
              if(k==i)
              {
```

```
                cout<<v[k][j+1]<<"\t";
                a[idx]=v[k][j+1];
                ++idx;
            }
            else
            {
                cout<<v[k][0]<<" \t";
                a[idx]=v[k][0];
                ++idx;
            }
        }
        max=a[0];
        for(int z=0;z<n;++z)
        {
            if(max<a[z])
            {
                max=a[z];
                                }
                        }
                        cout<<max;
        cout<<endl;
      }
   }
   return 0;
}
```

OUTPUT:-


C:\Users\Ashish\Desktop\Untitled2.exe
Enter the number of variables:3
enter min and max limits for each variable :-
limit1 : 1 300
limit2 : 1 300
limit3 : 1 300
TEST CASES FOR LARGEST OF THREE NUMBERS :-
X Y Z OUTPUT
150 150 150 150
1 150 150 150
2 150 150 150
299 150 150 299
300 150 150 300
150 1 150 150
150 2 150 150
150 299 150 299
150 300 150 300
150 150 1 150
150 150 2 150
150 150 299 299
150 150 300 300
Process exited after 6.739 seconds with return value 0
Press any key to continue . . .