

Fundamentals of Programming

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HOMETASK 3

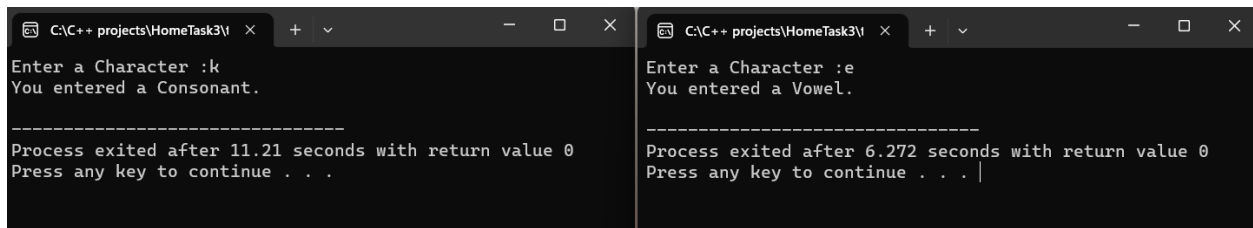
Task1: code to print population of provinces.

```
1  #include<iostream>
2  using namespace std;
3
4  int main()
5  {
6      int N;
7      cout<<"Choose one of the following to check population of provinces : "<<endl;
8      cout<<"1.Punjab    2.Sindh\n3.KPK        4.Balochistan"<<endl;
9      cin>>N;
10     switch(N){
11         case 1: cout<<"Population of Punjab : 127 Million.";
12                 break;
13         case 2: cout<<"Population of Sindh : 57 Million.";
14                 break;
15         case 3: cout<<"Population of KPK : 39 Million.";
16                 break;
17         case 4: cout<<"Population of Balochistan : 21 Million.";
18                 break;
19         default: cout<<"Invalid Entry."<<endl;
20     }
21     return 0;
22 }
```

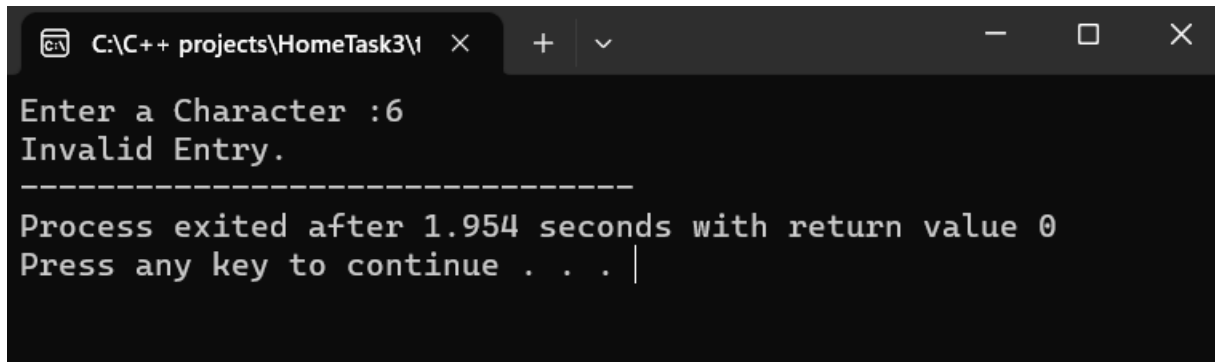
The image shows two side-by-side screenshots of a C++ program execution in a Windows command prompt. Both windows have the title 'C:\C++ projects\HomeTask3\'. The left window shows the program's output for input '4', which is 'Population of Balochistan : 21 Million.'. The right window shows the program's output for input '12', which is 'Invalid Entry.'. Both windows also display the program's prompt 'Choose one of the following to check population of provinces : 1.Punjab 2.Sindh 3.KPK 4.Balochistan' and the message 'Process exited after 2.85 seconds with return value 0' and 'Press any key to continue . . . |'.

Task2:

```
1  #include<iostream>
2  using namespace std;
3  // C++ programm to check whether a character is vowel, or consonant using switch case.
4  // Syed Asad Raza Zaidi(464239)
5  int main()
6  {
7      char ch;
8      cout<<"Enter a Character :";
9      cin>>ch;
10     if(ch>='a' && ch<='z' || ch>='A' && ch<='Z')
11     {
12         switch(ch){
13             case 'a':
14             case 'e':
15             case 'i':
16             case 'o':
17             case 'u':
18             case 'A':
19             case 'E':
20             case 'I':
21             case 'O':
22             case 'U':
23                 cout<<"You entered a Vowel."<<endl;
24                 break;
25             default:
26                 cout<<"You entered a Consonant."<<endl;
27         }
28     }
29     else cout<<"Invalid Entry.";
30     return 0;
31 }
```



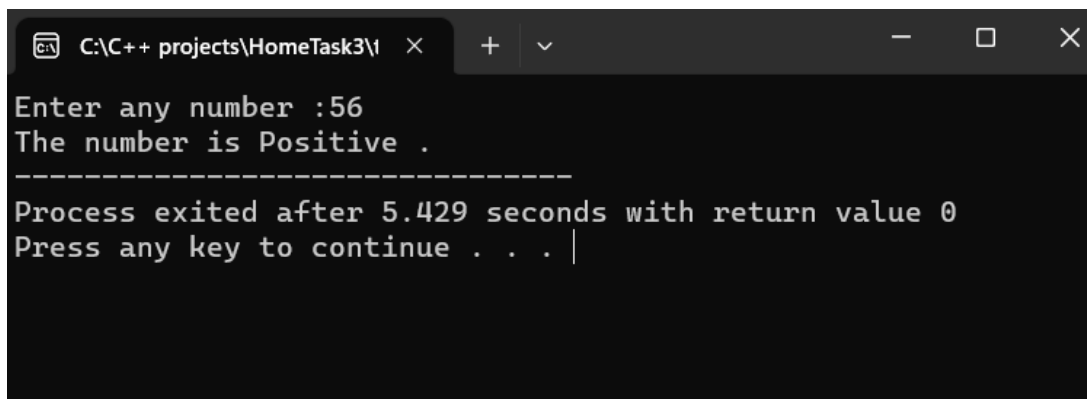
The image shows two side-by-side terminal windows from a Windows command prompt. Both windows have a title bar that reads "C:\C++ projects\HomeTask3\1". The left window shows the program being executed with the input 'k'. It prompts "Enter a Character :k", outputs "You entered a Consonant.", and then displays a separator line followed by "Process exited after 11.21 seconds with return value 0" and "Press any key to continue . . .". The right window shows the program being executed with the input 'e'. It prompts "Enter a Character :e", outputs "You entered a Vowel.", and then displays a separator line followed by "Process exited after 6.272 seconds with return value 0" and "Press any key to continue . . .".



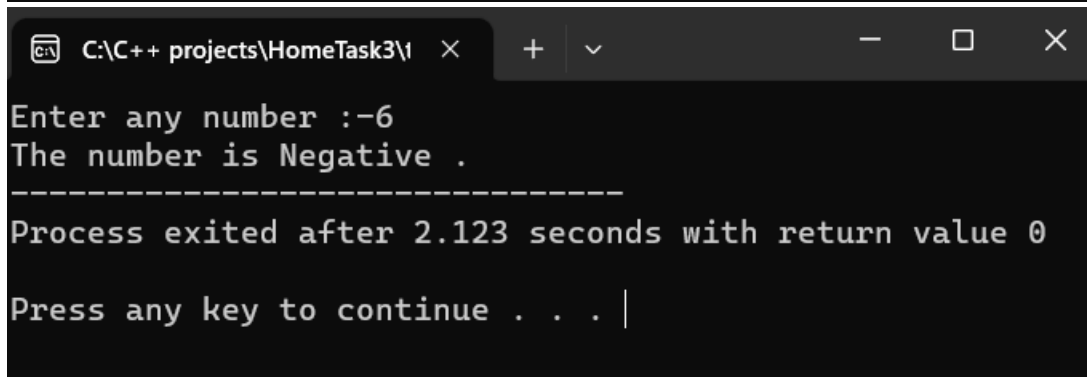
The image shows a single terminal window with a title bar that reads "C:\C++ projects\HomeTask3\1". It shows the program being executed with the input '6'. It prompts "Enter a Character :6", outputs "Invalid Entry.", and then displays a separator line followed by "Process exited after 1.954 seconds with return value 0" and "Press any key to continue . . .".

Task3:

```
1  #include<iostream>
2  using namespace std;
3  // A program to check whether a number is positive, negative or zero using switch case.
4  // Syed Asad Raza Zaidi(464239)
5  int main()
6  {
7      int n;
8      cout<<"Enter any number :";
9      cin>>n;                                //using if-else to check +ve and -ve value
10     if(n>0) n=1;
11     else if(n<0) n=-1;
12     else n=0;
13     switch(n){
14         case 1 :
15             cout<<"The number is Positive .";
16             break;
17         case -1 :
18             cout<<"The number is Negative .";
19             break;
20         case 0 :
21             cout<<"The number is Zero .";
22         default:
23             cout<<"Invalid Entry .";
24             break;
25     }
26     return 0;
27 }
```



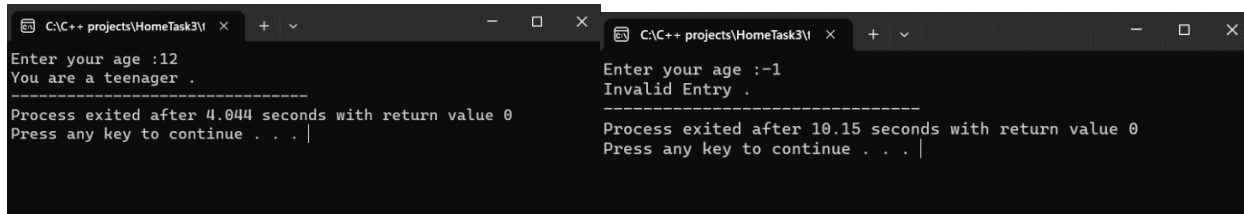
A screenshot of a Windows command prompt window titled "C:\C++ projects\HomeTask3\l". The window shows the execution of a C++ program. The user enters "56" when prompted "Enter any number :". The program outputs "The number is Positive ." followed by a separator line. Below the separator, it shows "Process exited after 5.429 seconds with return value 0" and "Press any key to continue . . . |".



A screenshot of a Windows command prompt window titled "C:\C++ projects\HomeTask3\l". The window shows the execution of the same C++ program. The user enters "-6" when prompted "Enter any number :". The program outputs "The number is Negative ." followed by a separator line. Below the separator, it shows "Process exited after 2.123 seconds with return value 0" and "Press any key to continue . . . |".

Task4:

```
1  #include<iostream>
2  using namespace std;
3  // C++ program to check whether a person is an adult, teenager or child using nested if-else.
4  // Syed Asad Raza(464239)
5  int main()
6  {
7      int x;
8      cout<<"Enter your age :";
9      cin>>x;
10     if(x>0 && x<=100){
11         if(x<10) cout<<"You are a Child .";
12         else if(x>=10 && x<=18) cout<<"You are a teenager .";
13         else if(x>18) cout<<"You are an Adult . ";
14     }
15     else
16         cout<<"Invalid Entry .";
17
18     return 0;
19 }
```



Two screenshots of a C++ program execution. The left screenshot shows the program running with input 12, outputting "You are a teenager .". The right screenshot shows the program running with input -1, outputting "Invalid Entry .".

Task5:to find the greatest of all numbers.

```
1  #include<iostream>
2  using namespace std;
3  // C++ program to find the greatest out of three numbers.
4  // Syed Asad Raza Zaidi(464239)
5  int main()
6  {
7      int x,y,z;
8      cout<<"Enter any three numbers(X,Y,Z) :"<<endl;
9      cout<<"Enter the value of X :";
10     cin>>x;
11     cout<<"Enter the value of Y :";
12     cin>>y;
13     cout<<"Enter the value of Z :";
14     cin>>z;
15     if(x!=y && x!=z && y!=z){
16         if(x>y && x>z) cout<<"X is greater than Y and Z .";
17         else{
18             if(y>x && y>z) cout<<"Y is greater than X and Z ";
19             else{ cout<<"Z is greater than X and Y ";}
20         }
21     }
22     else{cout<<"One or more numbers you entered are equal .";}
23     return 0;
24 }
```

```
C:\C++ projects\HomeTask3\l x + v - □ ×
Enter any three numbers(X,Y,Z) :
Enter the value of X :9
Enter the value of Y :7
Enter the value of Z :4
X is greater than Y and Z .
-----
Process exited after 19.93 seconds with return value 0
Press any key to continue . . . |
```

Task6:to check whether a character using nested if-else

```
1 #include<iostream>
2 using namespace std;
3 // C++ programm to check whether a character is vowel, or consonant.
4 // Syed Asad Raza Zaidi(464239)
5 int main()
6 {
7     char ch;
8     cout<<"Enter a character :";
9     cin>>ch;
10    if(ch>='a' && ch<='z' || ch>='A' && ch<='Z')
11    {
12        if(ch=='a' || ch=='e' || ch=='i' || ch=='o' || ch=='u' || ch=='A' || ch=='E' || ch=='I' || ch=='O' || ch=='U')
13        {
14            cout<<"Your character is a vowel";
15        }
16        else{
17            cout<<"You entered a consonant .";
18        }
19    }
20    else{cout<<"You entered invalid character .";
21    }
22    return 0;
23 }
```

```
C:\C++ projects\HomeTask3\l x + v - □ ×
Enter a character :e
Your character is a vowel
-----
Process exited after 4.538 seconds with return value 0
Press any key to continue . . .
```

```
C:\C++ projects\HomeTask3\l x + v - □ ×
Enter a character :3
You entered invalid character .
-----
Process exited after 4.876 seconds with return value 0
Press any key to continue . . .
```

```
C:\C++ projects\HomeTask3\l x + v - □ ×
Enter a character :e
Your character is a vowel
-----
Process exited after 4.538 seconds with return value 0
Press any key to continue . . . |
```