School Of Mechanical & Manufacturing Engineering, NUST

Department of Mechanical Engineering

CS-114 - Fundamentals of Programming

Lab Assignment # 2

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LAB MANUAL # 03

Home Tasks

1: Write a C++ program to print the total number of populations in Punjab, Sindh, KPK, and Balochistan using a switch case.

main.cpp

```cpp
#include <iostream>
using namespace std;
int main (){
    char prov; //declaring variable
    cout<<"Sindh:s"<<endl<<"Puniab:p"<<endl<<"Balochistan:b"<<endl<<"KPK:k"
        <<endl<<endl;//assigning one letter to every province
    cout<<"Enter Key for Province: "<<endl;
    cin>>prov;
switch (prov) //switch cases and outputs
{
   case 's':
   cout<<"Sindh's population is 54 million";
   break;
   case 'p':
   cout<<"Punjab's population is 116 million";
   break;
   case 'b':
   cout<<"Balochistan's population is 20 million";
   break;
   case 'k':
   cout<<"KPK's population is 39 million";
   break;
   default:
   cout<<"Error";
}
   return 0;
}
```

Output

```
/tmp/eYfUqNiANO.o
Sindh:s
Puniab:p
Balochistan:b
KPK:k

Enter Key for Province:
s
Sindh's population is 54 million
```

2: Write a C++ program to check whether an alphabet is a vowel or consonant using a switch case.

main.cpp

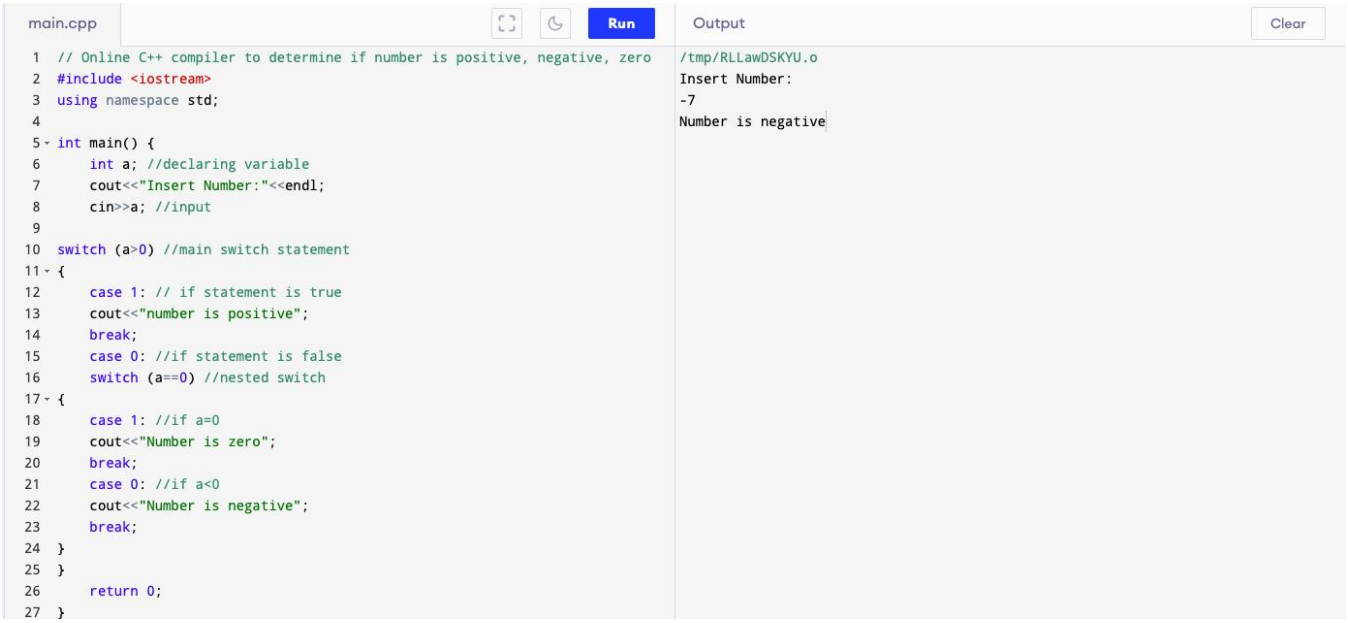
```cpp
#include <iostream>
using namespace std;
int main() {
    char alph;//declaring variable
    cout<<"Enter lowercase alphabet:"<<endl;
    cin>>alph;//input

switch (alph)//switch case
{
    case 'a':
    cout<<"This is a vowel";
    break;
    case 'e':
    cout<<"This is a vowel";
    break;
    case 'i':
    cout<<"This is a vowel";
    break;
    case 'o':
    cout<<"This is a vowel";
    break;
    case 'u':
    cout<<"This is a vowel";
    break;
    default:
    cout<<"This is a consonant";
    break;
}
    return 0;
}
```

Output

```
/tmp/rI5fkHrbWS.o
Enter lowercase alphabet:
u
This is a vowel
```

3:Write a C++ program to check whether a number is positive, negative, or zero using a switch case.



main.cpp — Run — Output — Clear

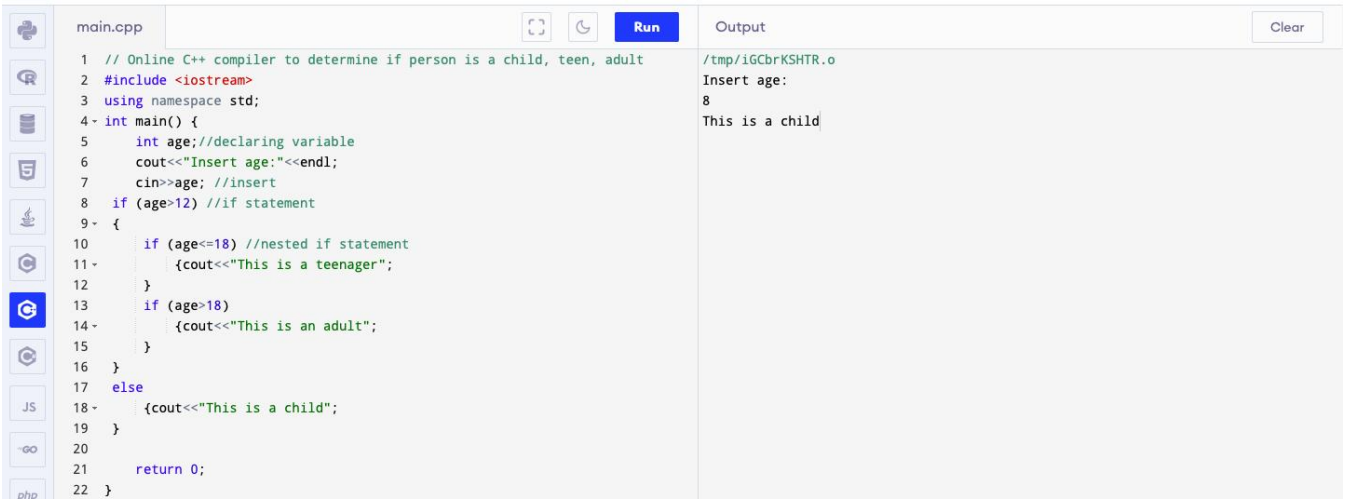
```
// Online C++ compiler to determine if number is positive, negative, zero
#include <iostream>
using namespace std;

int main() {
    int a; //declaring variable
    cout<<"Insert Number:"<<endl;
    cin>>a; //input

switch (a>0) //main switch statement
{
    case 1: // if statement is true
    cout<<"number is positive";
    break;
    case 0: //if statement is false
    switch (a==0) //nested switch
{
    case 1: //if a=0
    cout<<"Number is zero";
    break;
    case 0: //if a<0
    cout<<"Number is negative";
    break;
}
}
    return 0;
}
```

```
/tmp/RLLawDSKYU.o
Insert Number:
-7
Number is negative
```

4:Write a C++ to find out whether a person is an adult, teenager, or child using nested if-else.



main.cpp — Run — Output — Clear

```
// Online C++ compiler to determine if person is a child, teen, adult
#include <iostream>
using namespace std;
int main() {
     int age;//declaring variable
     cout<<"Insert age:"<<endl;
     cin>>age; //insert
  if (age>12) //if statement
  {
      if (age<=18) //nested if statement
          {cout<<"This is a teenager";
      }
      if (age>18)
          {cout<<"This is an adult";
      }
  }
  else
      {cout<<"This is a child";
  }

     return 0;
}
```

```
/tmp/iGCbrKSHTR.o
Insert age:
8
This is a child
```

5: Write a C++ program that takes three number from the user and find the greatest number out of the three numbers using nested if-else statements.

main.cpp

Run

```
// Online C++ compiler to determine largest integer out of 3 inputs
#include <iostream>
using namespace std;
int main() {
    int a,b,c; //declaring variables
    cout<<"Insert Integer A:"<<endl;
    cin>>a; //input, declaration
    cout<<"Insert Integer B:"<<endl;
    cin>>b; //input, declaration
    cout<<"Insert Integer C:"<<endl;
    cin>>c; //input, declaration
if (a>b) //if statement
    {if(a>c) //nested if
        {cout<<"The greatest integer is: "<<a;
    }}
if (b>a) //if statement
    {if (b>c) //nested if
        {cout<<"The greatest integer is: "<<b;
    }}
if (c>a) //if statement
    {if (c>b) //nested if
        {cout<<"The greatest integer is: "<<c;
    }}
    return 0;
}
```

Output

Clear

```
/tmp/aZyBrevSVG.o
Insert Integer A:
7
Insert Integer B:
89
Insert Integer C:
6
The greatest integer is: 89
```

6: Write a C++ program to check whether the alphabet entered by the user is Vowel or Consonant using nested if-else.

main.cpp

Run

```
// Online C++ compiler to run C++ program online
#include <iostream>
using namespace std;

int main() {
    char alph; //declaring variable
    cout<<"Insert lowercase alphabet:"<<endl;
    cin>>alph; //input
//if, nested if, nested else if
if (!(alph=='b'))
{
    if (alph=='a')
    cout<<"This is a vowel";
    else if (alph=='e')
    cout<<"This is a vowel";
    else if (alph=='i')
    cout<<"This is a vowel";
    else if (alph=='o')
    cout<<"This is a vowel";
    else if (alph=='u')
    cout<<"This is a vowel";
    else
    cout<<"This is a consonant";
}
else if (alph=='b')
    {cout<<"This is a consonant";
}
    return 0;
}
```

Output

Clear

```
/tmp/k7zJBoJjl1.o
Insert lowercase alphabet:
f
This is a consonant
```