

CS-114 - Fundamentals of Programming

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Lab Manual 3

Home Tasks:

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

Input:

```
//task 1
//assign variables to province populations
char prov;
//user input for required province
cout << "Enter the first letter(uppercase) of the province you want to know the population of: "<<endl;
cin >> prov;
// switch case statement for each population
switch (prov) {
case 'P':
cout << "Population of Punjab is: 110,000,000" << endl;
break;
case 'B':
cout << "Population of Balochistan is: 12,335,129" << endl;
break;
case 'K':
cout << "Population of KPK is: 35,501,964" << endl;
break;
case 'S':
cout << "Population of Sindh is: 47,854,510" << endl;
break;
}
```

Output:

```
Enter the first letter(uppercase) of the province you want to know the population of:
K
Population of KPK is: 35,501,964

-----
Process exited after 4.586 seconds with return value 0
Press any key to continue . . .
```

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

Input:

```
//task 2
char letter;
cout<<"Enter a letter(lowercase only): "<<endl;
cin>>letter;
switch (letter) {
case 'a': case 'e': case 'i': case 'o': case 'u':
cout << "This letter is a vowel" << endl;
break;
default :|
cout << "This letter is a consonant"<<endl;
break;
}
```

Outputs:

```
Enter a letter(lowercase only):  
v  
This letter is a consonant  
-----  
Process exited after 0.8193 seconds with return value 0  
Press any key to continue . . .
```

```
Enter a letter(lowercase only):  
o  
This letter is a vowel  
-----  
Process exited after 5.293 seconds with return value 0  
Press any key to continue . . .
```

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

Inputs:

```
// task 3  
float n;  
// Ask user to enter a number of choice  
cout<< "Enter any number: "<<endl;  
cin>>n;  
// Switch statement checks if the value of n is positive  
switch (n > 0) {  
    case true:  
        cout<<"This number is positive."<<endl;  
        break;  
    case false:  
        // If it is zero or negative we add another switch  
        switch (n < 0)  
        {  
            case true:  
                cout<<"This number is negative."<<endl;  
                break;  
            case false:  
                cout<<"This number is zero."<<endl;  
                break;  
        }  
}
```

Outputs:

```
Enter any number:
0
This number is zero.

-----
Process exited after 0.8458 seconds with return value 0
Press any key to continue . . .
```

```
Enter any number:
12
This number is positive.

-----
Process exited after 1.973 seconds with return value 0
Press any key to continue . . .
```

```
Enter any number:
-49
This number is negative.

-----
Process exited after 2.126 seconds with return value 0
Press any key to continue . . .
```

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

Input:

```
// task 4
// Assign variable for age of a person
int age;
cout<<"Enter your age: "<<endl;
cin>>age;

if (age<0) {
    cout<<"Invalid number entered."<<endl;
} else {
    if (age < 13) {
        cout<<"You are a child."<<endl;
    } else if (age <= 18) {
        cout<<"You are a teen."<<endl;
    } else {
        cout<<"You are an adult"<<endl;
    }
}
```

Outputs:

```
Enter your age:
38
You are an adult

-----
Process exited after 2.47 seconds with return value 0
Press any key to continue . . .
```

```

Enter your age:
7
You are a child.

-----
Process exited after 2.699 seconds with return value 0
Press any key to continue . . .

```

```

Enter your age:
16
You are a teen.

-----
Process exited after 1.157 seconds with return value 0
Press any key to continue . . .

```

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.

Input:

```

// task 5
int num1, num2, num3;
//Input 3 numbers
cout<<"Enter three numbers of your choice: "<<endl;
cin >> num1 >> num2 >> num3;
//nested if else statement for determining largest number
if (num1>=num2 && num1 >= num3){
    cout<<num1<<" is the largest number"<<endl;
} else if (num3>num1 && num3>num2) {
    cout<<num3<<" is the largest number"<<endl;
} else {
    cout<<num2<<" is the largest number"<<endl;
}

```

Output:

```

Enter three numbers of your choice:
65
98
21
98 is the largest number

-----
Process exited after 5.998 seconds with return value 0
Press any key to continue . . .

```

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

Input:

```

//task 6
char alp;
cout<<"Enter a letter of your choice (lowercase only): "<<endl;
cin>> alp;
    if (alp >= 'a') {
        if (alp == 'a') {
            cout << "This is a vowel." << endl;
        } else if (alp == 'e') {
            cout << "This is a vowel." << endl;
        } else if (alp == 'i') {
            cout << "This is a vowel." << endl;
        } else if (alp == 'o') {
            cout << "This is a vowel." << endl;
        } else if (alp == 'u') {
            cout << "This is a vowel." << endl;
        } else {
            cout << "This is a consonant." << endl;
        }
    } else {
        cout << "Invalid character. Please try again." << endl;
    }
}

```

Outputs:

```

Enter a letter of your choice (lowercase only):
a
This is a vowel.

-----
Process exited after 2.566 seconds with return value 0
Press any key to continue . . .

```

```

Enter a letter of your choice (lowercase only):
h
This is a consonant.

-----
Process exited after 4.748 seconds with return value 0
Press any key to continue . . .

```