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Assigment-02

1. **Write an if statement that assigns 100 to x when y is equal to O.**

   Program:

   ```
   #include<iostream>
   using namespace std;
   int main()
   {
        int x,y;
        cout<<"100 will be assigned to x if y is equal to 0=";
        cin>>y;
        if(y==0)
        {
             x=100;
             cout<<"\nThe Value of x is="<<x;
        }
   }
   ```

2. **Write an if/else statement that assigns 0 to x when y is equal to 10. Otherwise it should**

   assign 1 to x.

   Program:

   ```
   #include<iostream>
   using namespace std;
   int main()
   {
        int x=1,y;
        cout<<"Enter the value:";
        cin>>y;
        if(y==10)
        {
             x=0;
             cout<<"x is equal to="<<x;
        }
        else
             cout<<"x is equal to="<<x;
   ```

}

3. **Using the following chart, write an if/else if statement that assigns .10, .15, or .20 to commission, depending on the value in sales.**

Sales Commission Rate	Sales Commission Rate
U to $10,000	10%
$10,000 to $15,000	15%
over $15,000	20%

```cpp
#include<iostream>
using namespace std;
int main()
{
        int x;
        cout<<"Enter the sales:";
        cin>>x;
        if(x==10000)
        cout<<"Commission rate will be 10%";
        if(x>10000 && x<=15000)
        cout<<"Commission rate will be 15%";
        if(x>15000)
        cout<<"Commission rate will be 20%";
}
```

4. **Write nested if statements that perform the following tests: If amountl is greater than 10 and amount 2 is less than 100, display the greater of the two?**

```cpp
#include<iostream>
using namespace std;
int main()
{
        int amount1,amount2;
        cout<<"Enter the value of amount 1=";
        cin>>amount1;
        cout<<"Enter the value of amount 2=";
        cin>>amount2;
        if(amount1>10 && amount1>amount2)
        cout<<amount1;
        if(amount2<100 && amount2>amount1)
        cout<<amount2;
```

}

5. **Write an if statement that prints the message "The number is valid" if the variable grade is within the range 0 through 100.7. What will the following programs print on the screen?**

```cpp
#include<iostream>
using namespace std;
int main()
{
    int x;
    cout<<"Enter the grade number=";
    cin>>x;
    if(x>0 && x<100.7)
    cout<<"The number is valid";
}
```

6. **Write an if statement that prints the message "The number is valid" if the variable temperature is within the range —50 through 150?**

```cpp
#include<iostream>
using namespace std;
int main()
{
    int temperature;
    cout<<"Enter the temperature=";
    cin>>temperature;
    if(temperature>-50 && temperature<150)
    cout<<"The number is valid";
}
```

7,8. Write an if statement that prints the message "The number is not valid" if the variable hours is outside the range 0 through 80?

```cpp
#include<iostream>
using namespace std;
int main()
{
    int hour;
    cout<<"Enter the hour=";
```

```
        cin>>hour;
        if(hour<0 || hour>80)
        cout<<"The number is not valid";
}
```

Find the Errors

Each of the following programs has errors. Find as many as you can.

9. // This program averages 3 test scores.

// It uses the variable perfectScore as a flag.

```
include <iostream>
using namespace std;
int main()
{
cout << "Enter your 3 test scores and I will ";
<< "average them:";
int score1, score2, score3,
cin >> score1 >> score2 >> score3;
double average;
average = (score1 + score2 + score3) / 3.0;
if (average = 100);
perfectScore = true; // Set the flag variable
cout << "Your average is " << average << endl;
bool perfectScore;
if (perfectScore);
{
cout << "Congratulations!\n";
cout << "That's a perfect score.\n";
cout << "You deserve a pat on the back!\n";
return 0;
}
```

Correction:

In first line: # before include is missing.

In seventh line variable are missing semicolon(;) at the end of the statement and they should

be declared first in int main().

In sixth line: cout before <<"average them:"; is missing.

In tenth line (;)semicolon is not used in if statement.

In fifteen line again semicolon is not used in if statement.

10. // This program uses an if/else if statement to assign a
// letter grade (A, B, C, D, or F) to a numeric test score.

```cpp
#include <iostream>
using namespace std;
int main()
{
int testScore;
cout << "Enter your test score and I will tell you\n";
cout << "the letter grade you earned: ";
cin >> testScore;
if (testScore < 60)
cout << "Your grade is F.\n";
else if (testScore < 70)
cout << "Your grade is D.\n";
else if (testScore < 80)
cout << "Your grade is C.\n";
else if (testScore < 90)
cout << "Your grade is B.\n";
else
cout << "That is not a valid score.\n";
else if (testScore <= 100)
cout << "Your grade is A.\n";
return 0;
}
```

In seventeen line else without previous if.

In nineteen line else if without previous if.

11.The following statement should determine if x is not greater than 20. What is wrong with it?

if (!x> 20)

Answer:

! should after x not before that would give an error and right form would be :
if(x<20)

12.The following statement should determine if count is within the range of O through 100. What is wrong with it?

if (count >=0 Il count <= 100)

Answer:

Correction would be:

If(count>0 || count <100)

As it is said it should go between from 0 to 100.

13.The following statement should determine if count is outside the range of 0 through 100. What is wrong with it?

if (count < O && count > 100)

Answer:

|| (or)operator should be used instead of && (and) operator.

Programming Challenges

14.   **Write a program that can be used as a math tutor for a young student. The program should display numbers that are to be added, such as:**

   247

+ 129

The program should wait for the student to enter the answer. If the answer is

correct, a message of congratulations should be printed. If the answer is

incorrect, a message should be printed showing the correct answer.

Program:

```
#include<iostream>
using namespace std;
int main()
{
      int num1,num2,sum,output;
      cout<<"Enter the first number=";
      cin>>num1;
      cout<<"Enter the second number=";
      cin>>num2;
```

```cpp
        sum=num1 + num2;
        cout<<"Enter the result of "<<num1<<"+"<<num2<<endl;
        cin>>output;
        if(output==sum)
        {
                cout<<"Congratulation";
        }
        else
                cout<<"Incorrect answer";
                cout<<"\nThe correct answer is"<<sum;
}
```

15. **Write a program that asks the user to enter two numbers. The program should use the conditional operator to determine which number is the smaller and which is the larger.**

    Program:

    ```cpp
    #include<iostream>
    using namespace std;
    int main()
    {
        int num1,num2;
        cout<<"Enter both values:";
        cin>>num1>>num2;
        cout<<(num1>num2 ? num1:num2);
        return 0;
    }
    ```