Exercise 4: Selection Constructs

1. Draw flow chart for the following code segments:

   if (I am late)
   　　　I will take a cab.
   else
   　　　I will take a bus.

2. What is wrong (if anything) with the following code?
```
x=80;
if (x = 100);
    cout << "Excellent" ;
```

3. Determine the errors in the following program.
```
int main()
{
   double a=5.0, b=10.0;
   int operation;
   cout<<"Enter the operation [+, -, * or /]:);
   cin >> operation ;
   switch (operation)
        case = '+'      :     c = a+b;
        case = '-'      :     c = a-b;
        case = '*'      :     c = a*b;
        case = '/'      :     c = a/b;
   };
   cout << a << operation << b << "=" <<  c;
   return 0;
}
```

4. Write a program that calculates the equivalent resistance of two resistors connected either in series or parallel. The user will be prompted to enter his choice of calculation and then the values of the two resistors. A sample run of the code is shown below:

Program to calculate equivalent resistance.

1. Series connection
2. Parallel connection

Enter your choice: 2

Enter the value of the first resistor in units of ohms: 5
Enter the value of the second resistor in units of ohms: 20

The equivalent resistance is 4 ohms.
(The program must be tested with choice 1 and choice 2.)

5. Write a menu driven program that calculates the voltage, current or resistance using the Ohm's Law (V = IR).
    The program first displays a menu prompting the user to enter the choice of calculation. If he chooses voltage calculation, he will then be asked to enter the value of current and resistance. If he chooses current, he will then be prompted to enter voltage and resistance and so on. A sample run of the program is given below:

Ohms Law

1.   Voltage Calculation.
2.   Current Calculation.
3.   Resistance Calculation.

Enter your choice : 3

Resistance Calculation
=================
Enter voltage (volts) : 12
Enter current (amps) : 1.5

The resistance is 8 ohms.

(Use a **switch** statement for selection construct)