**4.1 Answer each of the following questions.**

a) All programs can be written in terms of three types of control structures: sequence, selection, and repetition.

b) The if selection statement is used to execute one action when a condition is true or a different action when that condition is false.

c) Repeating a set of instructions a specific number of times is called counter-controlled repetition.

d) When it isn’t known in advance how many times a set of statements will be paid, a flag value can be used to terminate the repetition.

**4.4 Write C++ statements to accomplish each of the following tasks.**

a) Declare variables sum and x to be of type int.

int x = 0;

int sum = 0;

b) Set variable x to 1.

x = 1;

c) Set variable sum to 0.

sum = 0;

d) Add variable x to variable sum and assign the result to variable sum.

sum = sum + x;

e) Print “The sum is:” followed by the value of variable sum.

cout << “The sum is: “ << sum;

**4.7 Write single C++ statements or portions of statements that do the following:**

a) Input integer variable x with cin and >>.

cin >> x;

b) Input integer variable y with cin and >>.

cin >> y;

c) Set integer variable i to 1;

int I = 1;

d) Set integer variable power to 1.

int power = 1;

e) Multiply variable power by x and assign the result to power.

power = power \* x;

f) Preincrement variable i by 1.

++i;

g) Determine whether i is less than or equal to y.

if ( i <= y);

h) Output integer variable power with cout and <<.

Cout << power << endl;

**4.9 Identify and correct the errors in each of the following:**

a) while (c <= 5)

{

product \*= c;

++c;

}

b) cin << value;

correction: cin >> value;

c) if ( gender = =1)

cout << “Woman” << endl;

else;

cout << “Man” << endl;

correction: 去掉else后面的分号（;）

**4.10 What’s wrong with the following while repetition statement?**

While ( z >= 0)

sum += z;

z的值始终不变，如果z的值大于等于0，循环就会一直进行，陷入死循环；如果小于0，循环就不会进行。这与想要的结果不同。

**4.12 输出结果：Total is 385**

**华南理工大学软件学院**

**高级语言程序设计报告**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **姓名** | 叶子繁 | **学号** | 201730684427 | **开题时间** | 2017.11.3 |
| **班级** | 软件工程（4）班 | | | **任课教师** | 金龙存 |
| **设计题目** | 4.13 | | | | |
| **一．题目功能描述**  输入单次距离与油耗，计算单次MPG及总MPG  **二．设计思路**  使用double的数据类型；  使用cin和cout进行数据的输入输出；  用while语句判断循环。  **三．实现代码**  #include<iostream>  using namespace std;  int main()  {  double miles = 0.0;\\单次距离  double gallons = 0.0;\\单次耗油  double MPG = 0.0;  double totalm = 0.0; \\总距离  double totalg = 0.0; \\总耗油  int counter = 0;  cout << "Enter miles driven (-1 to quit):";  cin >> miles;  while (miles != -1)  {  cout << "Enter gallons used:";  cin >> gallons;  MPG = miles / gallons; \\计算MPG  totalm += miles;  totalg += gallons;  ++ counter; \\计数器自增  cout << "MPG this trip: " << MPG;  cout << "\nTotal MPG: " << totalm / totalg;  cout << "\n\nEnter miles driven (-1 to quit):";  cin >> miles;  }  if (counter = 0)  cout << "No data was entered.";  }  **四．界面显示**  Enter miles driven (-1 to quit): 5  Enter gallons used: 5  MPG this trip: 1.000000  Total MPG: 1.000000  Enter miles driven (-1 to quit): -1 | | | | | |
| |  | | --- | | **五．批复** | | | | | | |

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| **姓名** | 叶子繁 | **学号** | 201730684427 | **开题时间** | 2017.11.3 |
| **班级** | 软件工程（4）班 | | | **任课教师** | 金龙存 |
| **设计题目** | 4.15 | | | | |
| **一．题目功能描述**  输入销售额，计算销售员工资  **二．设计思路**  使用int、float的数据类型；  使用cin和cout进行数据的输入输出；  用while语句判断循环。  **三．实现代码**  #include<iostream>  using namespace std;  int main()  {  float sales = 0.0;  cout << "Enter sales in dollars (-1 to end):";  cin >> sales;  while (sales != -1)  {  cout << "Salary is: $" << 200 + sales \* 0.09 << endl;  cout << "\n\nEnter sales in dollars (-1 to end):";  cin >> sales;  }  }  **四．界面显示**  Enter sales in dollars (-1 to end): 100  Salary is: $209  Enter sales in dollars (-1 to end): -1 | | | | | |
| |  | | --- | | **五．批复** | | | | | | |