Calvin Liu

Lecture 2

804182525

TA: Nick

1. What is the output produced by the following program segment? Don't just run it — trace through it and figure it out by hand (which is a skill you'll need for the exams).

string grendel = "endl";

cout << "endl";

cout << grendel;

cout << endl;

cout << "grendel";

The string grendel will be represented by endl. Then endl will appear. Then endl will show up again. It will go to the next line. It will then show the word grendel.

The output should look like:

endlendl

grendel

1. Consider the following program:

#include <iostream>

using namespace std;

int main()

{

int side;

cout << "Enter a number: ";

cin >> side;

for (int i = 0; i < side; i++)

{

for (int j = i; j >= 0; j--)

{

cout << "#";

}

cout << "\n";

}

}

In a brief, simple English sentence, state what this program does (e.g. "It prints a picture of a DVD player."). Again, figure this out by hand.

It creates a descending set of stairs of pound signs in a right triangle formation.

1. Copy the program in problem 2 and change it so that for any input number, the changed program produces *exactly* the same output as the original, but the changed program uses a while loop instead of a for loop for the inner loop.

#include <iostream>

using namespace std;

int main()

{

int side;

cout << "Enter a number: ";

cin >> side;

int i = 0;

while (i < side)

{

int j = i;

while (j >= 0)

{

cout << "#";

j--;

}

cout << "\n";

i++;

}

}

1. Copy the program you wrote for problem 3 and change it so that for any input number, it produces *exactly* the same output, but uses a do-while loop instead of a for loop for the outer loop. Be careful! (Hint: How does it behave if side is not positive?) You may need to add a little additional code to make sure the program behaves identically to the program in problem 3.

#include <iostream>

using namespace std;

int main()

{

int side;

cout << "Enter a number: ";

cin >> side;

int i = 0;

if (i < side)

do

{

int j = i;

if (j >= 0)

do

{

cout << "#";

j--;

} while (j >= 0);

cout << "\n";

i++;

} while (i < side);

}

1. Assume year has been previously declared as an int and given a meaningful value. Write a switch statement that for any value of year, produces exactly the same output as the following if statement.

switch (year)

{

case 2008:

cout << "Obama";

break;

case 2000:

case 1988:

cout << "Bush";

break;

case 2012:

cout << "Who knows?";

break;

case 1992:

cout << "Clinton";

break;

default:

cout << "Someone";

}