**Homework 2: CS31**

**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 output produced by the following program segment is:

endlendl

grendel

**2. 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";

}

}

This program prints out a right triangle of hashtags.

**3. 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;

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

{

int j = i;

while (j >= 0)

{

cout << "#"; j--;

}

cout << "\n";

}

}

**4. Copy the program you wrote for problem 3 and change it so that for any input number, the changed program produces exactly the same output as the original, 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;

do

{

if (side < 1)

return 1;

int j = i; i++;

while (j >= 0)

{

cout << "#"; j--;

}

cout << "\n";

} while (i < side);

}

**5. Assume codeSection has been previously declared as an int and given as its value the number of a section of the California Penal Code. Write a switch statement that for any value of codeSection, produces exactly the same output as the following if statement.**

***Original If-else Code:***

if (codeSection == 281)

cout << "bigamy";

else if (codeSection == 321 || codeSection == 322)

cout << "selling illegal lottery tickets";

else if (codeSection == 383)

cout << "selling rancid butter";

else if (codeSection == 598)

cout << "injuring a bird in a public cemetery";

else

cout << "some other crime";

***My Switch Code:***

switch (codeSection)

{

case 281:

cout << "bigamy";

break;

case 321:

case 322:

cout << "selling illegal lottery tickets";

break;

case 383:

cout << "selling rancid butter";

break;

case 598:

cout << "injuring a bird in a public cemetery";

break;

default:

cout << "some other crime";

}