

CS 1044, Summer II 2000
Homework #1
Due: Saturday, July 22 (by midnight)

All answers must be typed using either MS Word or an ASCII text editor and submitted to the EAGS by midnight on Saturday, July 22. There will be no late extensions for this assignment. Handwritten answers will not be accepted; answers will not be accepted by methods other than the EAGS (such as e-mail). All short answer questions ("describe", "define", etc) can (and should) all be answered in one or two sentences. If you find yourself needing to write more, it probably means that you have the wrong answer. For any problem that involves computational steps, show intermediate work for partial credit.

The Honor Code is in effect for this assignment. You may consult your book, notes, or the instructor/GTA, but NOT other students (regardless of if they are in the class or not). By submitting this assignment you are pledging: "I have neither given nor received unauthorized help on this assignment."

12	10	31	21	999
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1) Assume the following file, input.dat:

What would be the output of the following C++ code (be careful and look closely at the code - it's not what it should be):

```
int Num;
ifstream inFile;

inFile.open("input.dat");

while(inFile)
{
    inFile >> Num;
    cout << Num << endl;
}
```

There is no priming read, so the output would be:

12
10
31
21
999

999

See slide 4.23 for an example.

2) Write the C++ code required to read from an input filestream, inFile, and count the total number of spaces in the file.

```
char ch;
int Count =0;

inFile.get(ch);

while (inFile)
{
    if (ch == ' ')
    {
        Count++;
    }

    inFil.get(ch);
}
```

3) When deciding on a type of loop to use, when would you use a while loop? When would you use a for loop instead?

A while loop should be used when wanting to loop until an event happens, but you don't know how many times it will take. A for loop is used when you want to loop a certain number of times.

4) What's the difference between a while and a do-while loop?

A while loop will execute 0 or more times; a do-while loop will execute one or more times. A do-while loop will always execute at least once.

5) Write a C++ function called Product that takes two integer values and returns the product of all the integers between them. For example, if the function was invoked as Product(2, 4), it would return 24 (2 * 3 * 4). If the first integer is larger than the second, return an error value of -1.

```
int Product(int Num1, int Num2)
{
    int Total = 1;

    if (Num2 > Num1)
    {
```

```

        return (-1);
    }

    for (int i = 0; i <= Num2; i++)
    {
        Total *= i;
    }

    return (Total);
}

```

6) Give the following C++ code, what is the program output: (Hint: draw pictures of memory locations to help you keep track of the values)

```
#include <iostream>
```

```
int A = 2;
int B = 3;
```

```
void Func(int& Num1, int Num2); Prototype
```

```
int main()
{
```

```
    int A = 4;
    int B = 1;
    int C = 8;
```

```
    cout << A << " " << B << " " << C << endl;    4 1 8
```

```
    Func(A, B); Invocation
```

```
    cout << A << " " << B << " " << C << endl;    5 1 8
    return (0);
```

```
}
```

```
// Dummy function
```

```
void Func(int& Num1, int Num2) Definition
```

```
{
    Num1 = Num2 + A;
    Num2 = Num1 + B;
}
```

7) In the previous question, identify the function prototype, invocation, and definition.

