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Fall 2015

EN 443
Financial Computing in C++
Assignment 1

due on Wed, Sep 9, 1:30pm

1. Install a compiler and compile and run the examples on Blackboard.
2. Answer the following questions without compiling the code.

   a) What will be printed on the screen from the code below?

```
int i = 5;
do {
    cout << (--i)-- << " ";
} while (i >= 2 && i< 5);
```

   b) What is the data type of the following expressions?

```
char ch;
int intVal;
long longVal;
```

   i. 'a'-3;

   ii. intVal*longVal-ch;

   iii. longVal/intVal;

   iv. ch+longVal+3.14;

   c) What will !((1 || 0) && 0) evaluate to?

   d) What will be printed on the screen from the code below?

```
int i;
for(i = 0; i<5; i++)
    cout<<"Hello ";
    cout<<" world"<<endl;
```

   e) What will be printed on the screen from the code below?

```
int i,j;
for(i= 0, j= 10; i<j−1;++i,−−j)
{
   cout<<i +j<< ", ";
}
```

3. Write a program that asks a user to input an integer $n \geq 0$ and a real number x and calculates x^n. Your program cannot assume a valid input, and should verify its validity.

4. Write a program that asks the user to input a real number x and calculated an approximation to e^x, together with (a bound) on the error. The error cannot be greater than 10^{-3}.

   Hint: Use Taylor expansion.