

# LAB : C++ Programming Basics



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November 8<sup>th</sup>, 2011



# Introduction

- You will learn
  - How to write C++ code
  - How to compile and execute C++ code
- What will you do
  - Modify the code for the exercises to embed logic in it
  - Compile and execute the code for the programs discussed in the lecture and exercises

# Accessing Lab Files

- Log on to Ranger using **your\_login\_name**
- Uncompress the tar file, **trainingCPP.tar**, that is located in the **~train00** directory into your HOME directory.
- Switch to the subdirectory **Exercise** within the directory **trainingCPP**

This is your existing login, or the portal login (and password) you recently created.

```
ssh <your_login_name>@ranger.tacc.utexas.edu
```

```
tar -xvf ~train00/trainingCPP.tar
```

```
cd trainingCPP/Exercise
```

# Exercise 1: fct1.cc

- Objective: Understand the basics of writing functions
- Make sure you are in the directory **Exercise**
- Open file fct1.cc
  - **vi fct1.cc**
- Follow the instructions in the comments
  - add an appropriate return type for the function named addition
  - add an appropriate return statement in function addition;
  - print the value of variable **c** to the console
- Once you have completed the code
  - Compile the code with the intel compiler
    - icpc -o fct1 fct1.cc**
  - Fix errors, if any
  - Run the executable
    - ./fct1**

# Exercise 2: minVal.cc

- Objective: Learn how to declare variables, read values from the keyboard, write values to the console, and invoke functions
- Function minFct is provided to you. This function takes two integers as input and returns the minimum of the two
- Modify the code in the file minVal.cc to
  - declare three integers with the names: number1, number2, minValue
  - prompt the user to enter two integer values
  - read the integer values entered through the keyboard and store them in number1 and number2
  - invoke the function minFct and pass the values read from the keyboard  
Remember to store the value returned by minFct function in the variable minValue
  - print the minimum value to the console
- Save the file, compile and run:

```
icpc -o minVal minVal.cc
```

```
./minVal
```

# Exercise 3: fct2.cc

- Objective: Learn about access-specifiers, class member-function declaration and definition
- Modify fct2.cc – follow the comments in the code
  - add the access-specifier : public in the class GradeBook for all the member functions
  - write the definition of the function getBookName which is a member of the class GradeBook. The signature of the function is provided in the class-definition.
  - this function should return the string value stored in the class variable named courseBook
  - read the course name entered through keyboard. Make sure that spaces in the course name are allowed

# Exercise 3: fct2.cc

- Compile and run the code
  - `icpc -o fct2 fct2.cc`
  - `./fct2`