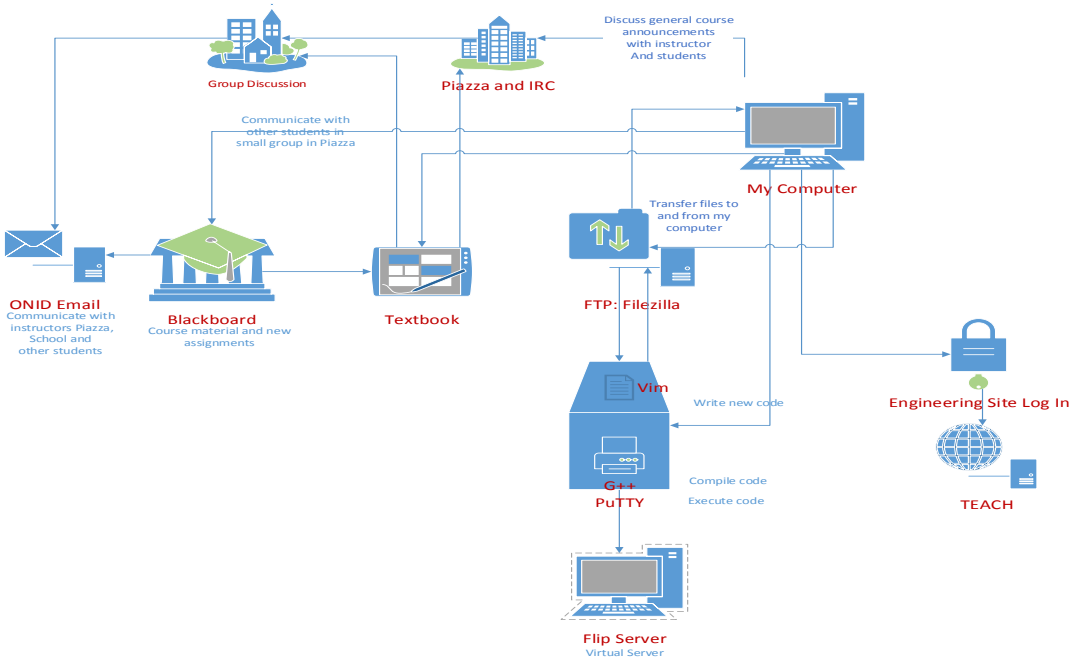
William George
Written Report
Week 1
10/5/2014

i. Understanding

1. Assignment 1
    a. Participation: This portion of the assignment is to ensure each student is signed up for the class and we have an opportunity to introduce ourselves to the class and get familiar with others in our area to potentially form study groups
2. Assignment 2
    a. Summary Document: This assignment is for the student to introduce him or herself to the professor and the TA's. We also include a picture for proctoring the exam and matching the name to a face. This was submitted to TEACH as summary.pdf
3. Assignment 3
    a. Review the videos and course material to get familiar and comfortable with the many different components of the course.
4. Assignment 4
    a. Drew a picture of the different components of the course and the relationships between them and discuss the drawing with your small group. The purpose of this drawing is to show understanding of the course materials and to answer any questions you may have regarding the class.
    b. My drawing: (I also submitted a pdf version to TEACH)



5. Assignment 5
    a. Planning
    This assignment is specifically for learning how to attack the problem presented to the class and the deliverables. We are to write out our plan for the program in a way where we can test it. This is a way to show understanding of what is required for the program to function properly.

(Separate pdf will be submitted for this named a1_planning.pdf)

6. Assignment 6
    a. Log in to the ssh such as PuTTY to access my home directory in linux.and get familiar with the system. Learning commands such as rename, create new directory and move files. After familiarizing ourselves we are to use Vim to create the source file for the Hello World program.

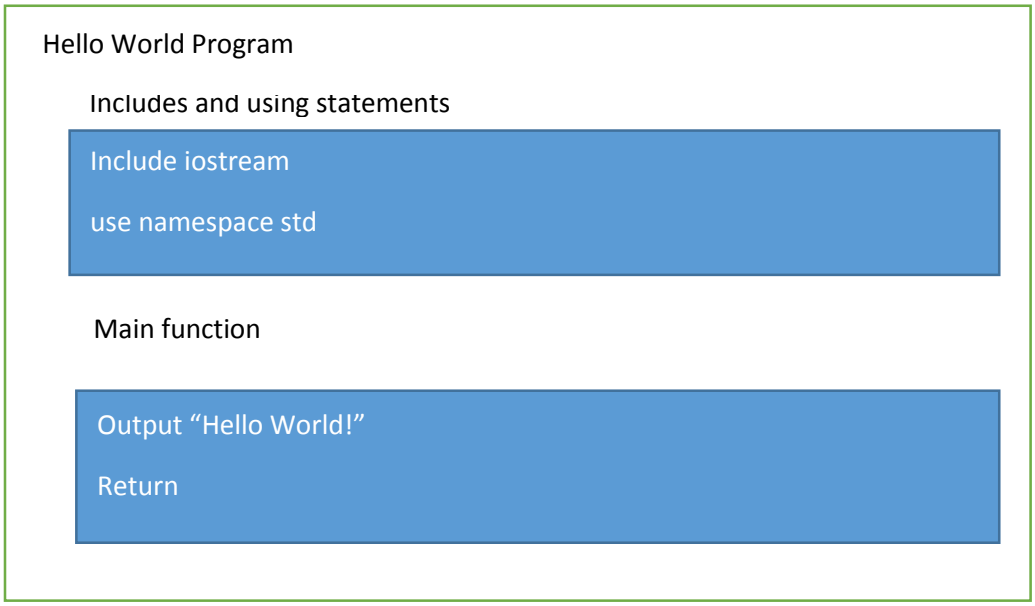
       The purpose of this is to familiarize ourselves with the programs we will be using to create our code. We will submit this by accessing our ftp (filezilla) and submitting the source code with everything else (the planning documents, personal summary, class relationship drawing) to TEACH.
7. Assignment 7
    a. Discuss the issues you had with the exercise program (hello.cpp) and help others with their own programs to be sure of understanding throughout the group.The purpose of this is to get used to bouncing ideas off others as we are creating new code.
8. Project Component
    a. The purpose of this project is to show the programmers have a solid grasp of the input/output capabilities of C++. This component of the class will be important as many of the upcoming projects will likely want the user to either input or output a command.

ii. Design

1a. Hello World Pseudocode

```
declare iostream
use namespace std
function main()
    Print “Hello World!”;
    Return 0;
end function;
```

1b. Hello World Diagram



2a. Echo Pseudocode:

```
    Declare iostream
using namespace std;
function Main()
    Define int = input_value
    print “Please Enter Integer to be Printed between 0 and 10000”;
    user input input_value;
    while
Integer is not between 0 and 10000;
                    print “Your integer is not between 0 and 10000”;
            break
    end while
print “your number is input_value;”
    return 0;
end function
```

2b. Echo Diagram

Echo Program

Includes and using statements

```
Include iostream

use namespace std
```

Main function

```
Give value to input_value
Ask user to input integer between 0 and 10000
Input user value
Extract user input
Determine whether input falls within the range of 0 to 10000
        If outside of range print error message
Print user input
Return
```

iii. Testing

Input	Expected Output	Actual Output
5	Your number is:.5	
5.23	Your number is: 5	
0	Your number is not between 0 and 10000 Your number is 0	
10000	Your number is not between 0 and 10000 Your number is 10000	
F	Your number is 1	

iv. Implementation

Input	Expected Output	Actual Output
5	Your number is:.5	Your number is:.5
5.23	Your number is: 5	Your number is: 5

0	Your number is not between 0 and 10000 Your number is 0	Your number is not between 0 and 10000 Your number is 0
10000	Your number is not between 0 and 10000 Your number is 10000	Your number is not between 0 and 10000 Your number is 10000
F	Your number is 1	Your number is 1

v. Reflection

1. Was your understanding complete at the start of the project or did you learn something about the problem as you went?

While my understanding was complete at the start of the project, I tried to take some liberties with the project to better understand the syntax of C++. As such I added some extra including a while loop and a number range. By doing this I learned a lot about the loop format and some error processing. I was going to make the program even more complex asking the user to input a new value if it didn't fit the range or data type, but I couldn't get it to work if the user entered a character rather than a number. When I did enter a character in that code I would get an infinite loop. Because I don't yet understand the error processing I decided to go with the simpler version of the code.

2. Was your initial design adequate for meeting all the requirements for the assignment or did you have to add to or alter your initial design to get it to meet all the requirements for the assignment (or is there still more work to go to meet all the requirements),

My original design met the requirements for the class and I tried to add extra elements to understand the complexity of C++ code more clearly.

3. Did all your tests work out the way you expected, did you have to alter your design because of some failed tests, and did you have to alter your tests because of some implementation details?

   Not all my tests worked out properly, specifically when I entered a character I would get an infinite loop. To fix this I changed the program so that the user could only enter an input once rather than twice by putting a "break" command in the loop. If the user does enter a character then they will get an output saying their number is 1

4. Did implementation go without any problems, were there details that were difficult to get working the way you wanted them to?

   As I described above I had some minor issues with an infinite loop when a character was plugged in. That being said there were no problem with making the project meet the assigned deliverables.

5. What techniques have we covered this week and in past weeks that helped you approach the problem, did you need to use outside sources to help solve the problem (list sites, books, or other materials that were helpful)? Does this project seem related to previous projects and do you see any names for future projects that it might be related to?

   The basic idea of the program and input/output technique were both helpful in finishing this project. I did use outside sources such as stack overflow to learn more about loops and error correction, but did not include the error correction info in my code. The research I did for this project should be valuable for the code that will be assigned next week.