Jordan University of Science and Technology
College of Computer and Information Technology
Department of Computer Science
Second Semester2017, CS 441 – Final Exam

Name: **ID:**   **PC**
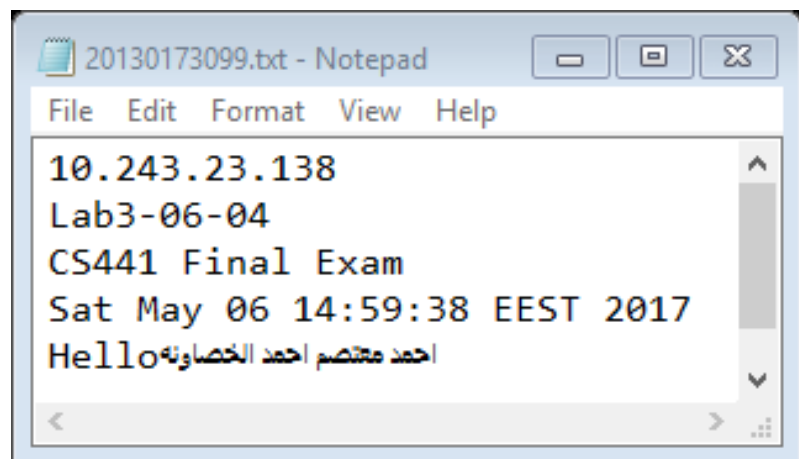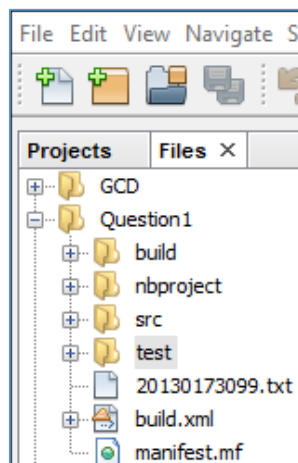
Submitting Assignments:

✓ Follow the instructions carefully and understand them before you begin.
✓ It is a closed book and notes exam; calculators, mobile phones, and other electronics are **NOT ALLOWED**.
✓ Only use Eclipse, NetBeans and Windows Explorer.
✓ Using a web browser, a chat client, or any USB device is forbidden. Using any of these will result in dismissal from the exam and a grade of zero.
✓ Your program should compile and run. a compiler or run-time errors will lose considerable points
✓ Complete each task, partial solution or alternative will be accounted but with a loss of points.
✓ Create the workspace on the Desktop with your ID, and the java project should be saved with your id (i.e. 2008930041), the class should be as (FinalExam_YourFirstName.java).

Question1 (20 Points):

Write a client program (main only) to communicate with a server1 on the IP = "10.243.24.74", on Port=1000 when connect the server sends your PC name and IP Print them to an output stream with your id.

Connect to server2 on IP ="10.243.23.132", on Port=100, send your **id number** to server2, keep reading what you get from the server and write it to the same output stream until you get null.

Sample Run

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Question2 (20 Points):

Write a multi-threading client server application in which each client sends two numbers, the server acts as a GCD server in which it calculates the greatest common divisor of the two numbers

- Test the application by using multi-client objects, use an array of integers to be send in pairs to the server or enter them from the scanner, try to distinguish each thread.

Sample Run

```
Output - Question2 (run)

    run:
    GCD(24,18)=6
    GCD(2048,96)=32
    GCD(79632,39)=3
    GCD(1048576,710)=2
```

Hint (GCD code)

```java
import java.util.*;
class Gcd
    {
        public static void main(String args[])throws Exception
        {
            Scanner sc = new Scanner(System.in);
            System.out.print("Enter the First no : ");
            int n1=sc.nextInt();
            System.out.print("Enter the Second no : ");
            int n2=sc.nextInt();
            int r;

            while(n2 != 0)
            {
                r = n1 % n2;
                n1 = n2;
                n2 = r;
            }
            System.out.print("GCD = "+n1);
        }
    }
```