CSCI2010
Principle of Computer Science

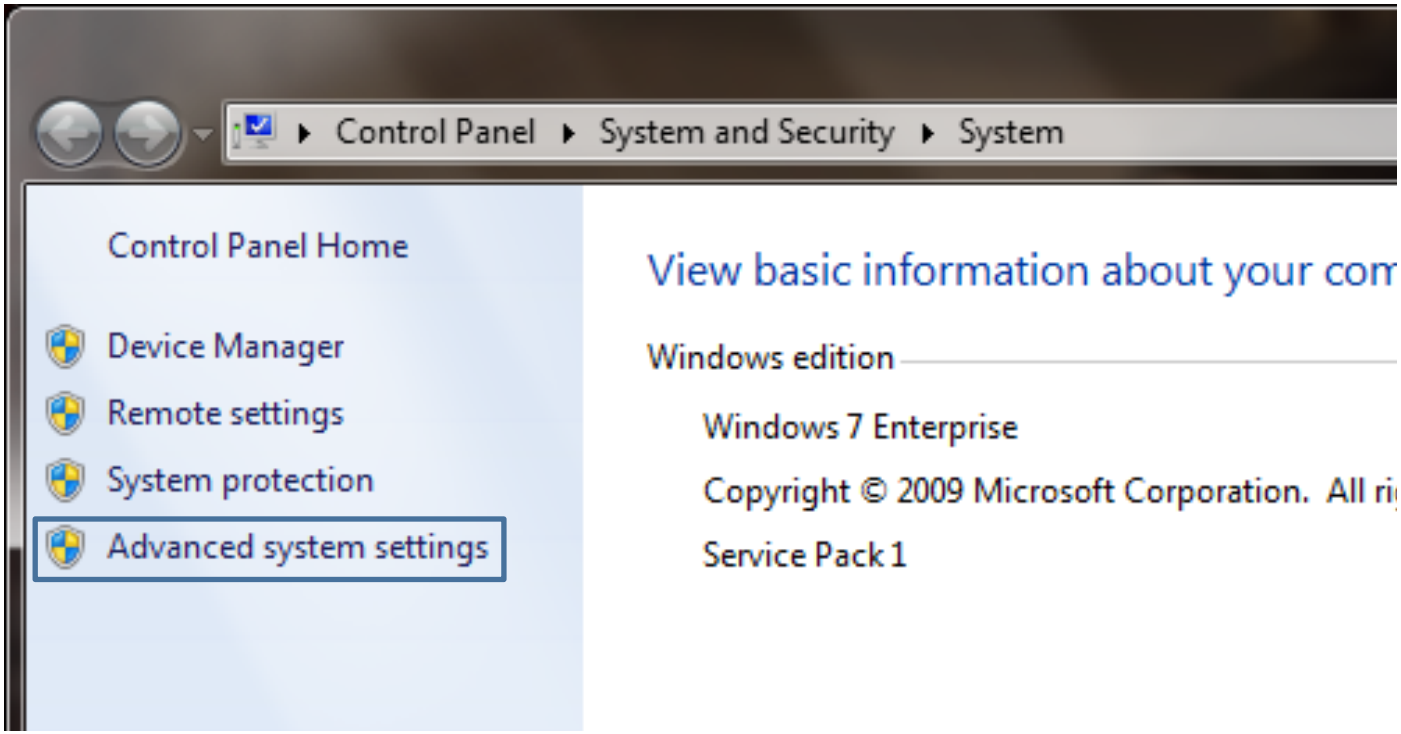
Laboratory One

Part 1: Java Development Environment Set Up

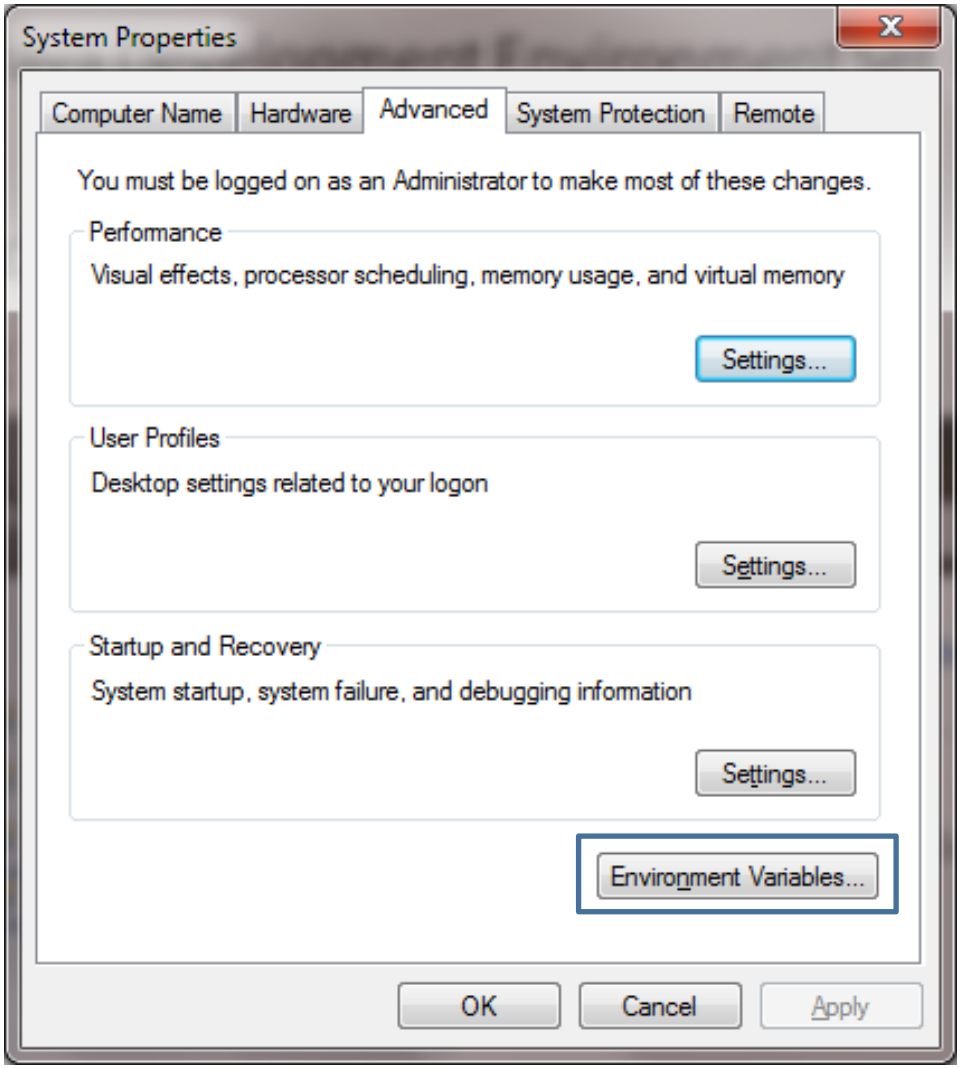
- **How to write and compile java codes**
  - **Download Java SE**
    - http://www.oracle.com/technetwork/java/javase/downloads/index.html
    - JDK (Java SE Development Kit)
    - JRE (Java Runtime Environment)
    - AFTER INSTALL PACKAGE, ADD JDK BIN FOLDER TO SYSTEM ENVIRONMENT VARIABLE “path” .

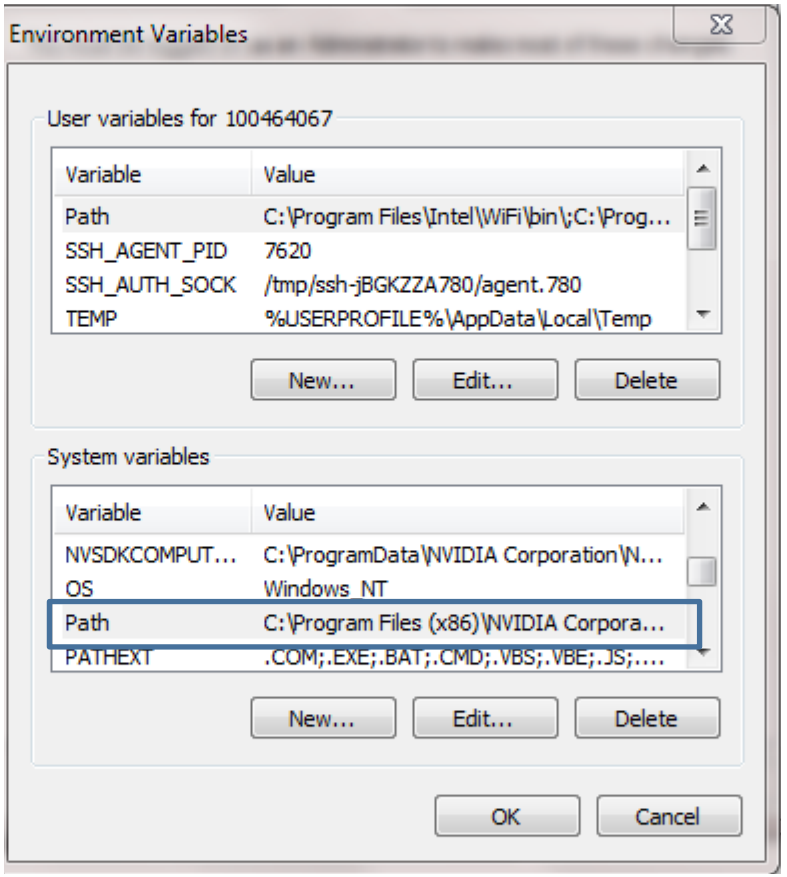
Part 1: Java Development Environment Set Up(cont.)

- Right click “computer” icon
- Select “Properties”



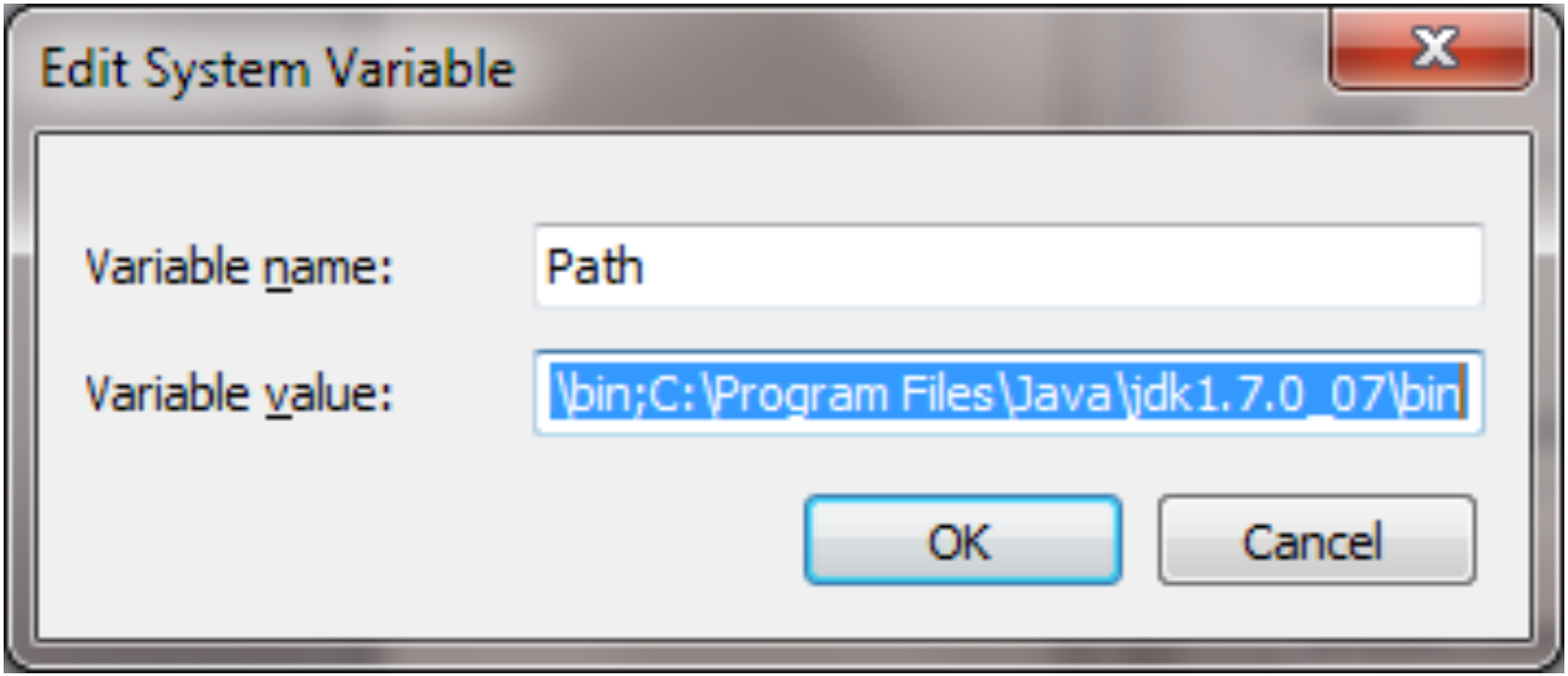
Part 1: Java Development Environment Set Up(cont.)





Part 1: Java Development Environment Set Up(cont.)

- Add jdk bin folder at the end of path variable



Part 1: Java Development Environment Set Up(cont.)

- Run cmd and input
  - javac –version
  - Cmd should display JDK version number
- You can use any editor to write your code
  - Notepad
  - Notepad++
  - …
  - Microsoft Word? (NO!)

Exercise-1

- Open a Notepad
- Add the following code

```
public class HelloWorld {
        public static void main(String[] args)
        {
                System.out.println(“Hello World!");
        }
}
```

Exercise-1 (cont.)

- Save it as HelloWorld.java
- Run cmd.exe and go to the folder which contains HelloWorld.java
- Input the following command in cmd
  - javac HelloWorld.java
- A .class file is generated under the same folder
- “java HelloWorld” to run our first java program!

Exercise-2

```
1  class Str {
2    public static void main(String[] args) {
3      String message2 = "Thing 1 and 2";
4      String Message2 = "Thing 4 and 5";
5      System.out.println('1');
6      System.out.println(message2);
7
8      char temp[] = {'T','h','i','n','g',' ','1',' ','a','n','d',' ','2'};
9      String message1 = Message2;
0      System.out.println('2');
1      System.out.println(message1);
2
3      System.out.println('3');
4      System.out.println(message2);
5      System.out.println("-----");
6
7      System.out.println('4');
8      System.out.print(message2);
9      System.out.println("-----");
0    }
1  }
```

Capital Sensitive

Variable must be defined before use

String must be surrounded by “”

space

1.Define a static array

2.Char must be surrounded a ‘’

Exercise-2 (cont.)

- Save it as “str.java”
- Compile it into class file and run it.

Exercise-3

```
1  class Str2 {
2      public static void main(String[] args) {
3          String p1 = "Earth is ";
4          int ea = 3;
5          String p2 = " billion years old";
6          String s = p1 + ea + p2;
7
8          System.out.println(s);
9
10         System.out.println("Sun is " + ea + 2 + " billion years old");
11         System.out.println("Sun is " + (ea + 2) + " billion years old");
12
13         1 > 2
14
15         // Escape sequences
16
17         System.out.println("1. I said \"Hello\" to you.");
18         System.out.println("2. I said \nHello to you.");
19         System.out.println("3. I said \tHello to you.");
20         System.out.println("4. I said \b\bHello to you.");
21         System.out.println("5. I said \fHello to you.");
22         System.out.println("6. I said \\ Hello to you.");
23     }
24 }
```

1) Is there any error?
2) Where is it?
3) How to fix it?

Are they same?

Pay attention to the escape character

Exercise-4

```
1  class Var {
2    public static void main(String[] args) {
3      int age = 0;
4      int height=5, weight = 0;
5
6      System.out.println("age = " + age);
7      System.out.println("height = " + height);
8      System.out.println("weight = " + weight);
9
10     age = 16; // assignment operator
11     System.out.println("age = " + age);
12
13     final boolean human = true; // declaring a constant
14     System.out.println("Is human? " + human);
15
16     //human = false; // trying to change a constant
17
18     /*int a = 3;
19     float b = 2;
20     System.out.println("a/b = " + a / (int)b);*/
21   }
22 }
```

Initialize variables

Keyword
Don't use java keyword to declare variable name

Commend a line with //

Commend a code block with a pair of /*….*/

Exercise-5

```java
class Tri {
    public static void main(String[] args) {
        System.out.println("Tri");

        Triangle t1 = new Triangle(2, 1);
        double area_t1 = t1.area();
        System.out.println("Area of t1 is " + area_t1);
        t1.enlarge(9);
        area_t1 = t1.area();
        System.out.println("Area of t1 is " + area_t1);

        System.out.println("Static variable t1.RIGHT_ANGLE is " + t1.RIGHT_ANGLE);
        System.out.println("Static variable Triangle.RIGHT_ANGLE is " + Triangle.RIGHT_ANGLE);
```

1.How many classes in this program?
2. Where is the entry point of this program?

```java
class Triangle {
    public static double RIGHT_ANGLE=90;

    public double width;
    public double height;

    public Triangle(double w, double h) {
        width = w;
        height = h;
    }

    public double area() {
```

Thank you