



THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL

COMP 110

Introduction to Programming

Thursday September 11, 2014

Jay Aikat

Fall 2014

TR 9:30 - 10:45, GS-G100



Previous Class

- What did we discuss?



Announcements

- Lab1 DUE today
- Lab today: 5-8 PM
- Readings: 3.1, 3.2, 3.3, 4.1
- **Assignment 2 DUE Tue, Sep 16 @ 11:55 PM**



Hands-on exercise

```
public class TestIfElse {  
  
    public static void main(String[] args)  
    {  
        Scanner keyboard = new Scanner(System.in);  
        System.out.println("Give me an integer:");  
    }  
}
```



Hands-on exercise

```
public class TestIfElse{

    public static void main(String[] args)
    {
        Scanner keyboard = new Scanner(System.in);
        System.out.println("Give me an integer:");

        int inputInt = keyboard.nextInt();

    }
}
```

COMP 110 - Fall 2014

5



Hands-on exercise

```
public class TestIfElse {
    public static void main(String[] args)
    {
        Scanner keyboard = new Scanner(System.in);
        System.out.println("Give me an integer:");
        int inputInt = keyboard.nextInt();

        if (inputInt >= 100)
        {
            System.out.println("3-digit number");
        }
        else
        {
            System.out.println("2-digit number"); // is this correct?
        }
    }
}
/* placement of brackets... */
```

COMP 110 - Fall 2014

6



Hands-on exercise

```
public class TestIfElse {
    public static void main(String[] args)
    {
        Scanner keyboard = new Scanner(System.in);
        System.out.println("Give me an integer:");
        int inputInt = keyboard.nextInt();

        if (inputInt >= 100) {           // note the brackets
            System.out.println("3-digit number");
        }
        else {
            System.out.println("2-digit number"); // is this correct?
        }
    }
}
/* placement of brackets... */
```

COMP 110 - Fall 2014

7



Hands-on exercise

```
public class TestIfElse {
    public static void main(String[] args)
    {
        Scanner keyboard = new Scanner(System.in);
        System.out.println("Give me an integer:");
        int inputInt = keyboard.nextInt();

        if (inputInt >= 100)           // WHAT? No brackets???
            System.out.println("3-digit number"); // OK if you only have ONE statement
        else if (inputInt < 100)
            System.out.println("2-digit number"); // same here - one statement
    }
}
/* placement of brackets... */
```

COMP 110 - Fall 2014

8



Hands-on exercise

```
public class TestIfElse {

    public static void main(String[] args)
    {
        Scanner keyboard = new Scanner(System.in);
        System.out.println("Give me an integer:");
        int inputInt = keyboard.nextInt();

        if (inputInt >= 100);           // what's wrong???
            System.out.println("3-digit number");
        else if (inputInt < 100);      // same here...
            System.out.println("2-digit number");
    }
}
/* placement of semicolons... */
```

COMP 110 - Fall 2014

9



Hands-on exercise

```
public class Test2 {

    public static void main(String[] args)
    {
        Scanner keyboard = new Scanner(System.in);
        System.out.println("Give me an integer:");
        int inputInt = keyboard.nextInt();

        if (inputInt >= 100)           // what's wrong???
            System.out.println("3-digit number");
            System.out.println("see if this ever prints!");
        else if (inputInt < 100)      // same here...
            System.out.println("2-digit number");
    }
}
/* placement of semicolons... */
```

COMP 110 - Fall 2014

10



Hands-on exercise

```
public class Test2 {

    public static void main(String[] args)
    {
        Scanner keyboard = new Scanner(System.in);
        System.out.println("Give me an integer:");
        int inputInt = keyboard.nextInt();

        if (inputInt >= 100) {
            System.out.println("3-digit number");
        }
        else if (inputInt < 100) {
            System.out.println("2-digit number"); // did we really fix it?
        }
    }
}
/* placement of brackets... */
```

COMP 110 - Fall 2014

11



Hands-on exercise

```
public class Test2 {

    public static void main(String[] args)
    {
        Scanner keyboard = new Scanner(System.in);
        System.out.println("Give me an integer:");
        int inputInt = keyboard.nextInt();

        if (inputInt >= 100) {
            System.out.println("3-digit number"); // what about 76532, for example?
        }
        else if (inputInt < 10) {
            System.out.println("1-digit number");
        }
        else {
            System.out.println("2-digit number");
        }
    }
}
```

COMP 110 - Fall 2014

12



Hands-on exercise

```
public class Test2 {

    public static void main(String[] args)
    {
        Scanner keyboard = new Scanner(System.in);
        System.out.println("Give me an integer:");
        int inputInt = keyboard.nextInt();

        if (inputInt >= 100) {
            System.out.println("number has 3 or more digits");
        }
        else if (inputInt < 10) {
            System.out.println("1-digit number");
        }
        else {
            System.out.println("2-digit number");
        }
    }
}
```

COMP 110 - Fall 2014

13



Hands-on exercise

```
public class Test2 {

    public static void main(String[] args)
    {
        Scanner keyboard = new Scanner(System.in);
        System.out.println("Give me an integer:");
        int inputInt = keyboard.nextInt();

        if (inputInt >= 100 && inputInt < 1000) { // did we fix it? Try 9876
            System.out.println("3-digit number");
        }
        else if (inputInt < 10) {
            System.out.println("1-digit number");
        }
        else {
            System.out.println("2-digit number");
        }
    }
}
```

COMP 110 - Fall 2014

14



Hands-on exercise

```
public class Test2 {
    public static void main(String[] args)
    {
        Scanner keyboard = new Scanner(System.in);
        System.out.println("Give me an integer:");
        int inputInt = keyboard.nextInt();

        if (inputInt < 10) {
            System.out.println("1-digit number");
        }
        else if (inputInt < 100) {
            System.out.println("2-digit number");
        }
        else if (inputInt < 1000) {
            System.out.println("3-digit number");
        }
        else {
            System.out.println("number has four or more digits");
        }
    }
}
```

COMP 110 - Fall 2014

15



If and Else

- You can use only one if statement
 - **if (boolean expression)**
 { statements; }
 other statements;
 - Other statements will always be executed
- You can also use an if-else statement
 - **if (boolean expression)**
 { statement 1; }
 else { statement 2; }
 - If the expression is true, run statement 1, otherwise run statement 2

COMP 110 - Fall 2014

17



Nested If and Else

```

if (time < 7){
  if (time < 6){
    go to the gym;
  }
  else{ // note the corresponding "if"
    have brkfst and leave;
  }
}
else{
  go to school;
}

```

- What's the logic flow?
 - If the time is less than 6, we go to the gym;
 - If the time is between 6 and 7, we eat breakfast and leave
 - If the time is greater than 7, we simply sprint to school!

COMP 110 - Fall 2014

18



Nested If and Else

```

if (time < 6){
  go to the gym;
}
else{
  if (time < 7){
    have brkfst and leave;
  }
  else{
    go to school;
  }
}

```

- What's the logic flow?
 - If the time is less than 6, we cook breakfast;
 - If the time is between 6 and 7, we get something cold
 - If the time is greater than 7, we go to school

COMP 110 - Fall 2014

19



Same Logic, Different Code

```

if (time < 6){
    go to the gym;
}
else{
    if (time < 7){
        have brkfst and leave;
    }
    else{
        go to school;
    }
}

```

```

if (time < 7){
    if (time < 6){
        go to the gym;
    }
    else{
        have brkfst and leave;
    }
}
else{
    go to school;
}

```

COMP 110 - Fall 2014

20



Using If and Else

- Use if-else statement
- Do not use two if statements
- Always pay attention to boundaries
 - Is it “>” or “>=”?
 - Is it “<” or “<=”?
 - Do you need a “==”?

COMP 110 - Fall 2014

21



Using If-Else

- Pay attention to **the brackets {}**
 - You can discard them if there is only one statement

```
if (inputInt > 0) {
    System.out.println("Positive");
}
else {
    System.out.println("Negative or zero");
}
```

```
if (inputInt > 0)
    System.out.println("Positive");
else
    System.out.println("Negative or zero");
```



Using If-Else

- Pay attention to **the brackets {}**
 - if there is only one statement in {}, discard them
 - If multiple statements, discarding {} will cause problems

```
– if (inputInt > 0)
    System.out.println("Positive");
else
    System.out.println("Negative or zero");
    System.out.println("What's happening?");
    // will always be executed
```



Using If-Else

- Pay attention to **the brackets {}**
 - As a good habit, don't discard them, even if you have only one statement in it
 - The only exception: **multibranch if-else**

COMP 110 - Fall 2014

24



Using If-Else

- Never put a semicolon after *if* or *else*
 - *if (inputInt > 0);*
System.out.println("What's happening now?");
- Compiler will interpret it as
 - *if (inputInt > 0)*
{ ;}
System.out.println("What's happening now?");

COMP 110 - Fall 2014

25



Next class (Tue, Sep 16)