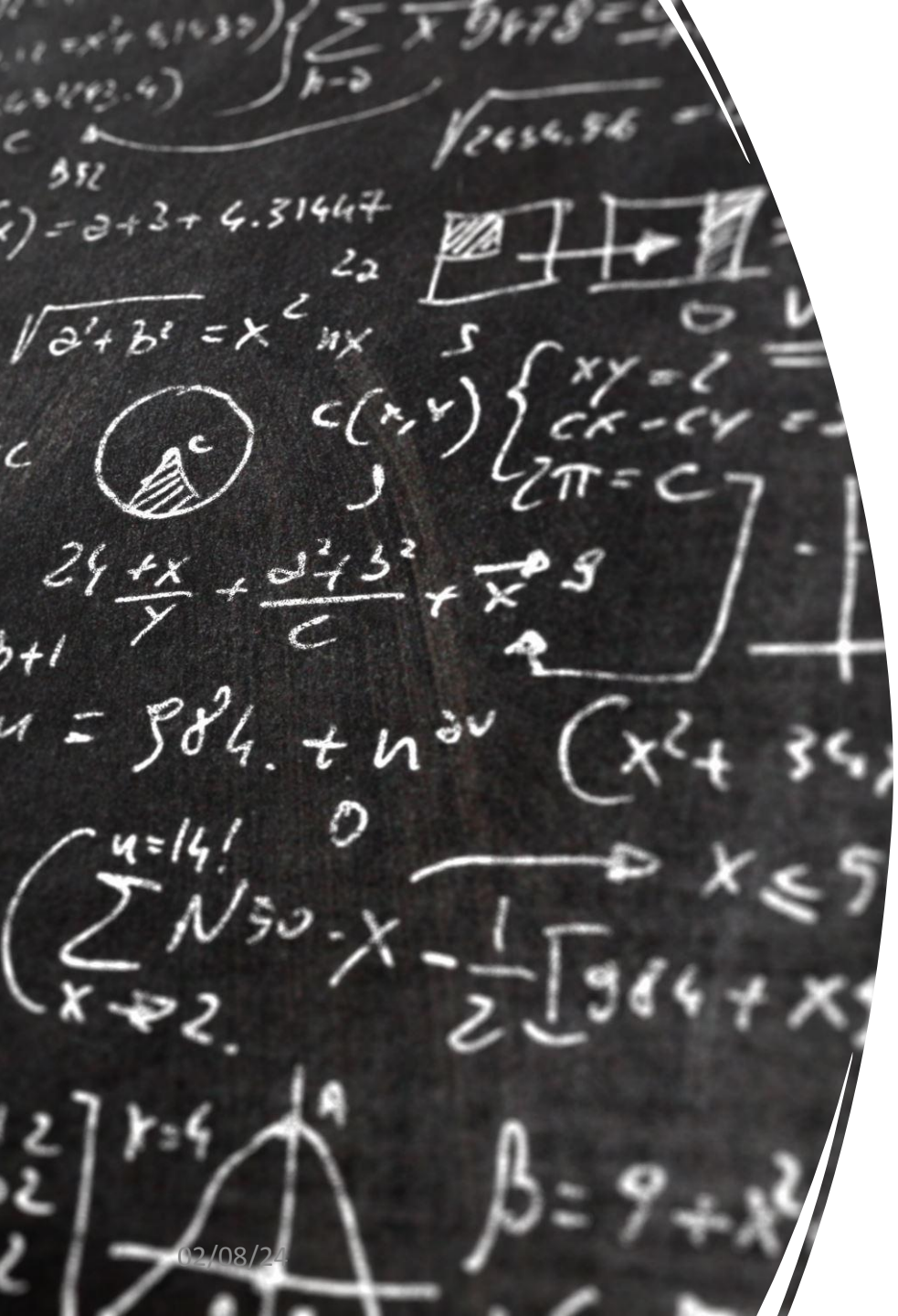

CS 113 – Computer Science I

Lecture 06 – Booleans & Conditionals

Thursday 02/08/2024

Announcements

- HW01 due tonight

Agenda

Review

If statements

else if statements

String Comparison

Review

lab3 string methods

If Statements

Exercise: IsEven

Write a program IsEven which asks the user for an integer and prints whether it is even or not

```
$ java IsEven
Enter an integer: 4
4 is even!

$ java IsEven
Enter an integer: -1
-1 is odd!

$ java IsEven
Enter an integer: 0
0 is even!
```

Exercise 2: Print the index of a vowel

```
numVowel('a') prints 0
numVowel('e') prints 1
numVowel('i') prints 2
```

….

`else if` statements

Can we make this cleaner?

NOTES:

- Conditions evaluated in order
- First true condition executes
- Only **one** of the conditions can execute!
- the final else statement is optional

Example: Height.java

- Consider a program (called Height.java) that determines if a user can ride a rollercoaster.

- ask the user for height in inches.
- If height is taller than 5 feet, print “taller than 5 feet”
- If the height is taller than 4 feet, print “taller than 4 feet”
- If the height is taller than 3 feet, print “taller than 3 feet”
- If they are under 3 feet, print that they are not tall enough to ride

Exercise: Height.java

```
class CheckHeight2 {
  public static void main(String[] args) {
    System.out.print("Enter a height (inches): ");
    int h = Integer.parseInt(System.console().readLine());

    if (h > 36) {
      println("Taller than 3 ft");
    }
    else if (h > 60) {
      println("Taller than 5 ft");
    }
    else if (h > 48) {
      println("Taller than 4 ft");
    }
    else {
      println("Too small for this ride");
    }
  }
}
```

`switch` statements

Another way to write control flow

```
switch (expr) {
    case value1:
        // code to be executed if expr == value1
        break;
    case value2:
        // code to be executed if expr == value2
        break;
    // additional cases as needed
    default:
        // code to be executed if none of the cases match
}
```

`switch` statements

rewrite `numVowel` with a `switch` statement

If you don’t include the break, execution will “fall through”

Exercise: Blackjack

Write a program Blackjack.java **with a switch statement** that generates a random value between 2 and 21

- If the value is 21, print the value and “Blackjack” to the console
- If the value is between 17 and 20, print the value and “Stand” to the console
- If the value is less than 17, print the value and “Hit me!” to the console

String Comparison

Comparing strings

- In Java, you cannot directly compare strings using ==
- Instead, use **compareTo**
  - The compareTo() method compares two strings *lexicographically*.
  - It returns a **negative integer, zero, or a positive integer** depending on whether the first string is lexicographically **less than, equal to, or greater** than the second.
- Javadocs: https://docs.oracle.com/javase/7/docs/api/java/lang/String.html

Comparing Strings

order:

- special characters
- 0-9
- A-Z
- a-z

This is a simplification! check ascii chart