CS112

Review of CS111
Lecture 01

Spring 2022 - 1443

College of Computer Science and Engineering

Java Characteristics

- Java is a high-level language
  - It is simple and easy to read and understand

- We use compilers to compile Java codes
  - A compiler takes the program code (source code, e.g., .java file) and converts the source code to a **machine language** module (called an object file, e.g., .class)

- It is platform compatible
  - it works on different operating systems such as Windows, mac, and several Linux distributions

- Java is OO
  - It deals with classes and objects of these classes (we will dig deep on this topic throughout this course!)

- It is perfect for web applications
  - It is supported with network facilities

especially, Java!

Exercise 01 - Primitive Data Types

- Give me examples for numeric data types
- Which data type should we use for the following values:
  - 5.4
  - "Welcome to CS112"
  - 0 and 1
  - 'A'
  - 1,2,3,4,5
  - Name "Amal", GPA 4.5, SID 378265 ??? Hmm!

IDE

- Eclipse ⬜ You can find a tutorial (file name: setup_eclipse.ppt) on how to setup the working environment

- Online IDE: https://www.tutorialspoint.com/compile_java_online.php

Scanner Class

- Scanner class is used when we need to obtain input from user

```java
import java.util.Scanner;

public class Ex1 {
    public static void main(String[] args) {
        Scanner input = new Scanner (System.in);
        System.out.println("What is your name?");
        String name = input.next();
        System.out.println("Your name is   " + name);
    }
}
```

If Statement

- We use if statements when we need to evaluate conditions in our program
- There are three types:
  1. One-way if statement
  2. Nested if statements
  3. If-else statements

```java
import java.util.Scanner;

public class Ex1 {

    public static void main(String[] args) {
        Scanner input = new Scanner (System.in);
        System.out.println("What is your age?");
        int age = input.nextInt();

        if(age >= 18) {
            System.out.println("You are an adult.");
        } else { // else if(age < 18) // if (age < 18)
            System.out.println("You are a teenager.");
        }

    }
}
```

Loops

- We use loops to execute statement(s) repeatedly for a number of rounds

- Loops can be infinite

- There are three types of loops:
  - For
  - While
  - Do…While

Can you give me an example for each loop type?

Methods

- A **method is** a block of code which only runs when it is called

- You can pass data, known as parameters, into a **method**

- **Methods are used** to perform certain actions, and they are also known as functions

Arrays

- Arrays are used to store several values of the same data type

- Syntax:
  - datatype[] arrayName = new datatype[];
  - There are other ways to declare arrays .. Example?

- Arrays can have two dimensions
  - Syntax:
    - datatype[][] arrayName = new datatype[rows][columns];
    - Example?