

CISC 3120

# C06: Java API & Libraries

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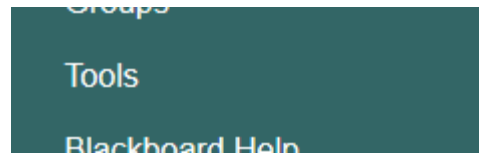
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# Outline

- Recap and issues
  - Grades and feedback
  - Java classes and objects
  - Java methods and flow controls
- Java API and libraries
- Assignments
  - Project 1
  - Practices

# Q: How am I doing?

- Check your grades often in CUNY Blackboard



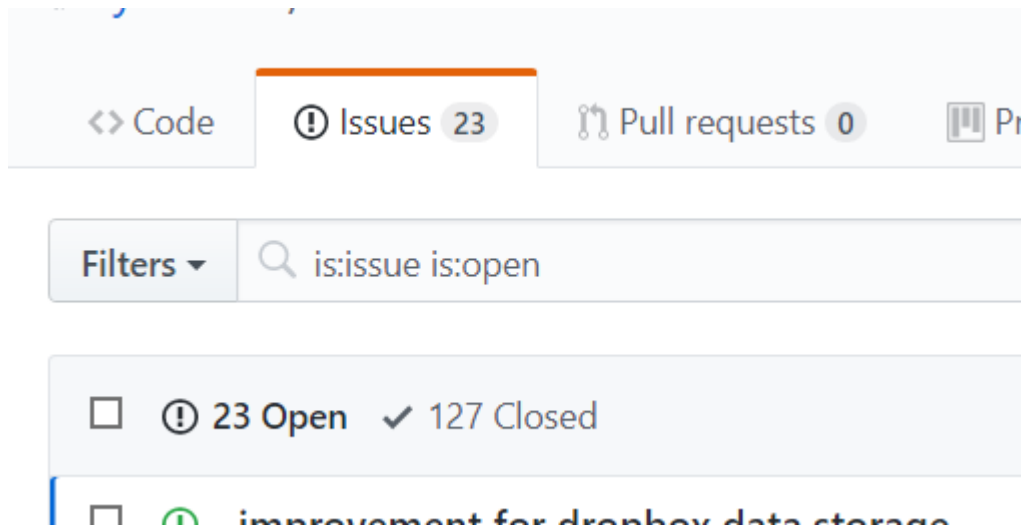
**My Grades**

Hide Link

*Displays detailed information about your grades.*

# Q: What did I do wrong?

- Feedback channel
  - Github issue tracking



# Q: How can I improve?

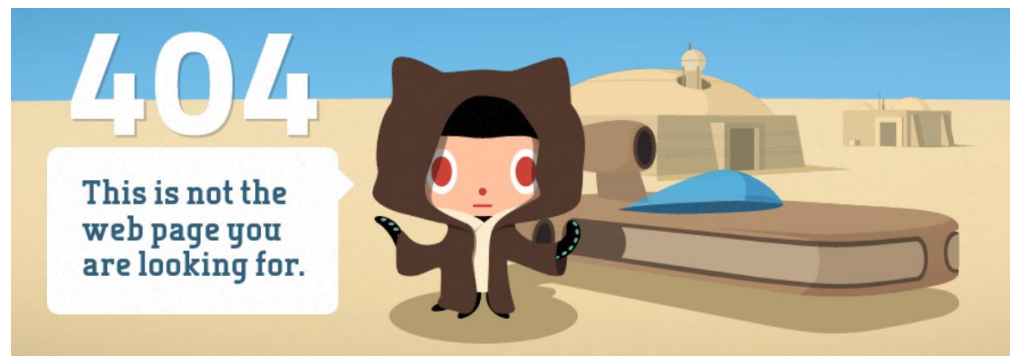
- "I don't like any other grades other than 'A'"
- Solution
  - Complete bonus exercises and assignments
  - Become better in time and task management

# Recap

- Discuss Java from perspective of a C++ developer
- Classes and objects
  - How do we write Java classes?
  - How do we create Java objects?
  - How do Java objects work together?
- Flow controls
  - Selections, iterations, break, continue, and return

# Project 1

- Continue to develop the "Target Game" from the start-up code
  - <https://github.com/CISC3120/sampleprograms/tree/master/TargetGame>
- Have you logged in?



# Project 1 In-Class Team Discussion

- Select project coordinator
  - Coordinator's responsibility
    - Accept the assignment
    - Clone the team project repository
    - Copy and add the start-up project to your own project repository
    - Commit and push the project
- Members' responsibility
  - Clone the repository
- Discuss initial tasks and steps
  - Use Github issue tracking to create tasks (issues) and assign them team members



# Java API and Libraries

"If I have seen further than others, it is by standing upon the shoulders of giants. "

-- Isaac Newton

# Array and ArrayList

- Array

- Example

- `String[] fruits = new String[5];`
    - `fruits[0] = new String("Apple");`
    - `System.out.println(fruits[0]);`

- ArrayList

- Example

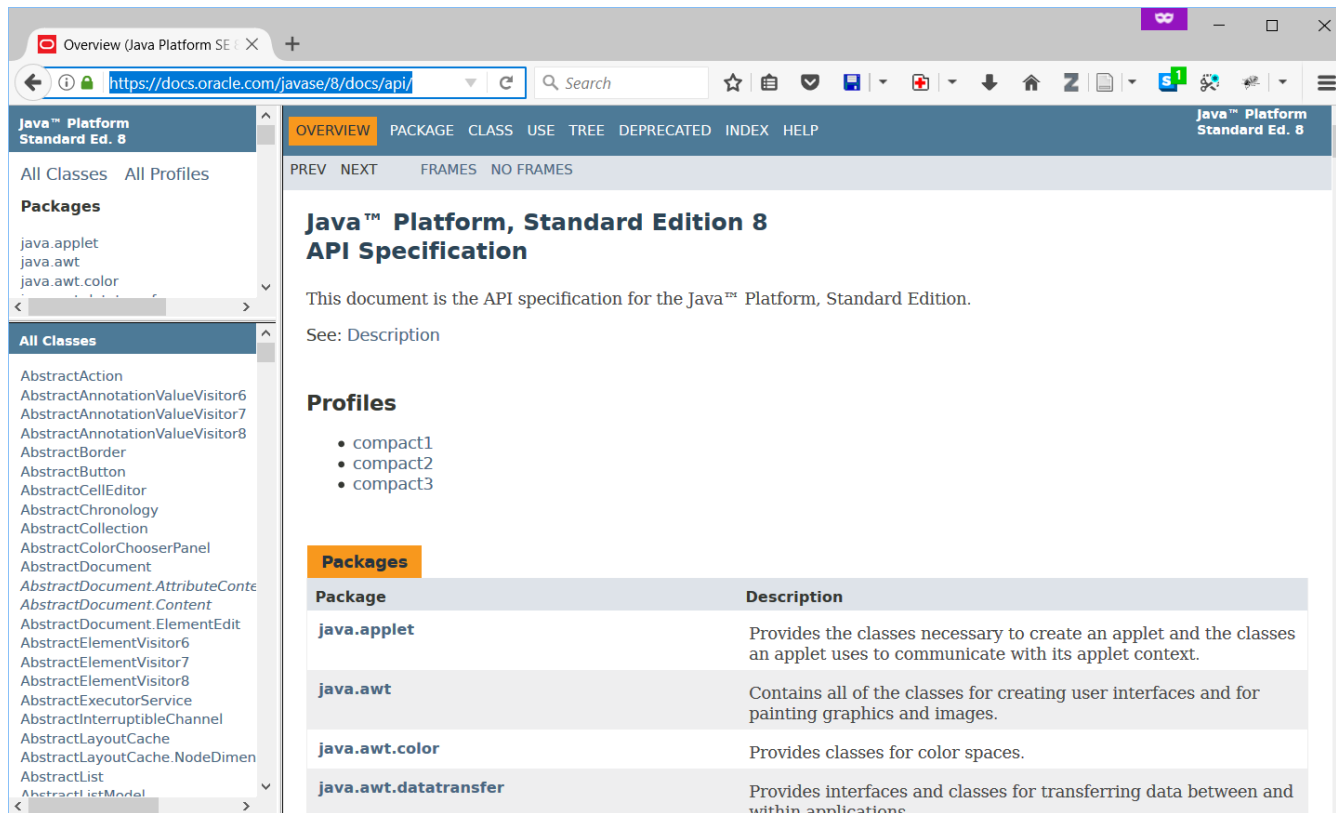
- `ArrayList<String> fruitList = new ArrayList<String>();`
    - `fruitList.add(new String("Apple"));`
    - `System.out.println(fruitList.get(0));`

# Array or ArrayList?

- Do you know how big your "list" should be?

# Java APIs and Libraries

- <https://docs.oracle.com/javase/8/docs/api/>



The screenshot shows a web browser displaying the Java Platform Standard Edition 8 API Specification. The browser's address bar shows the URL <https://docs.oracle.com/javase/8/docs/api/>. The page title is "Java™ Platform, Standard Edition 8 API Specification". The main content area includes a navigation menu with options like "OVERVIEW", "PACKAGE", "CLASS", "USE", "TREE", "DEPRECATED", "INDEX", and "HELP". Below the navigation, there is a section for "Profiles" with a list of options: compact1, compact2, and compact3. A "Packages" section is also visible, listing several packages with their descriptions:

Package	Description
<code>java.applet</code>	Provides the classes necessary to create an applet and the classes an applet uses to communicate with its applet context.
<code>java.awt</code>	Contains all of the classes for creating user interfaces and for painting graphics and images.
<code>java.awt.color</code>	Provides classes for color spaces.
<code>java.awt.datatransfer</code>	Provides interfaces and classes for transferring data between and within applications.

# Third Party Java Libraries

- Examples:
  - <https://github.com/google/guava>
  - <https://github.com/apache/commons-lang>
  - <https://github.com/qos-ch/slf4j>
  - <https://github.com/spring-projects/spring-framework>

# Command Line Arguments

- Want to build an application that take many command line arguments
- Apache Commons CLI
  - <https://github.com/apache/commons-cli>

# Example Application

- The "CmdLineArgsDemo" in the "sampleprograms" repo on Github
  - <https://github.com/CISC3120/sampleprograms/tree/master/CmdLineArgsDemo>

# Logging

- Want to build an application that can produce “logs” when it is even being released.
- The Simple Logging Facade for Java (SLF4J)
  - <https://github.com/qos-ch/slf4j>



# Example Application

- The Project 1 start-up code (the "Target Game")
  - <https://github.com/CISC3120/sampleprograms/tree/master/TargetGame>

# Questions?

- Java API and Libraries
  - Array and ArrayList
- Introduction to Java API and Libraries
- Third Party Java Libraries
  - Command line arguments and logging
- Assignments
  - Project 1
  - Practice and CodeLab assignments