CISC 3115 TY2

Programming Environment

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Outline

- Get around in Operating Systems

  - Unix-like: Unix, Linux, OS X

  - Windows

- Terminal and command line

- JRE and JDK

- Authoring Java programs

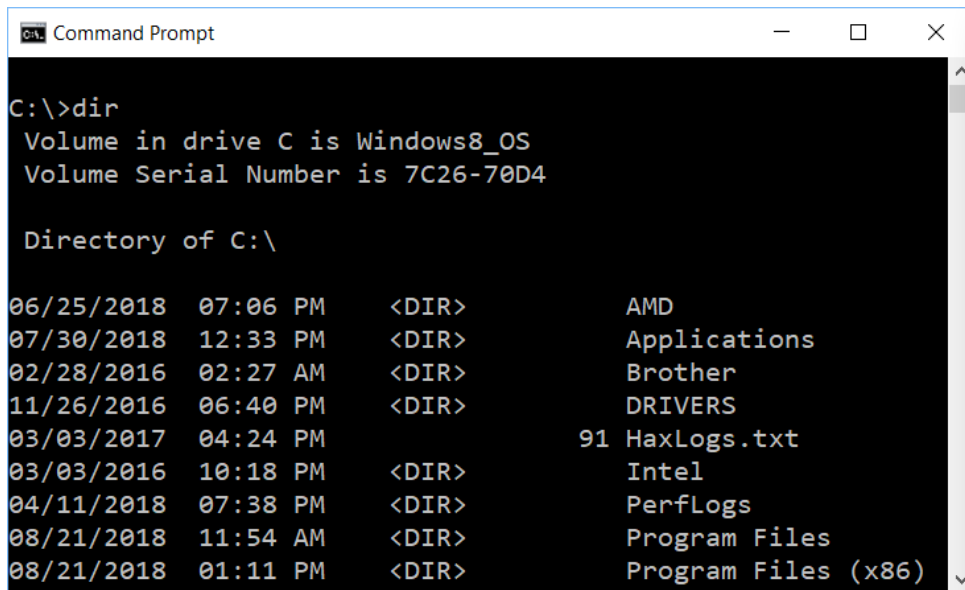- Compiling and running Java programs

Question?

- Do you have a computer that you can use for the class?

- It is necessary to have a computer for this class. What if you don't?

Operating Systems

- Do you know the answers to the questions:

  - Where are my files?

  - What is a folder or a directory?

  - How do I install an computer application?

  - How do I open a terminal window?

  - How do I copy/delete/rename a file, or a folder/directory. How about several files or folders/directories?

- To learn programming, it is necessary to be proficient in using your computer. Minimally, you need to know the answers to the questions like these.

  - If not yet, no sweat, we will get there this semester.
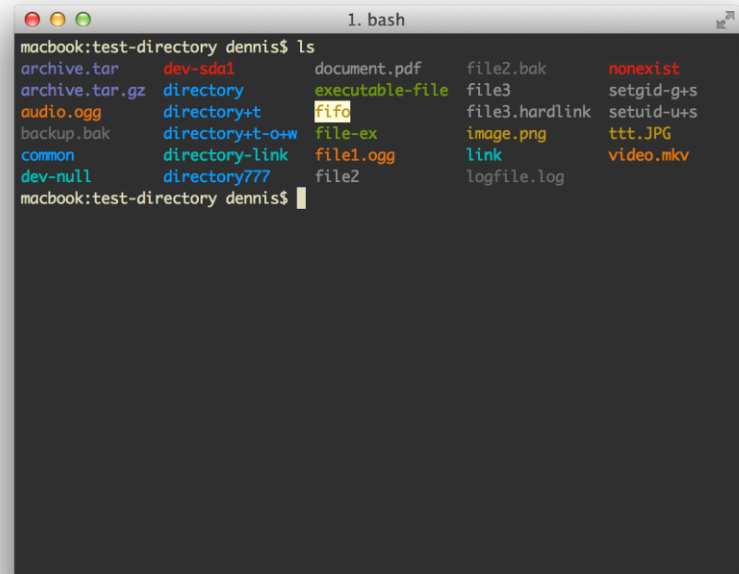
Terminal and Command Line

- Use a Command Line

- Why?

Common Tasks on Command Line

Windows

- Display working directory: cd

- Display content of a directory: dir

- Change directory: cd directory_to_go

- Make directory: mkdir dir_to_make

- Move files: move this_file   to_dir

- Delete file: del file_to_delete

- Delete directory: rmdir dir_to_delete

Unix-like

- Display working directory: pwd

- Display content of a directory: ls

- Change directory: cd directory_to_go

- Make directory: mkdir dir_to_make

- Move files: move this_file   to_dir

- Delete file: rm file_to_delete

- Delete directory: rmdir dir_to_delete

JRE and JDK

- JRE: Java Runtime Environment

  - Required to run a Java program

- JDK: Java Development Kit

  - Required to author a Java program

    - Compile and run Java programs

- Have you had JDK installed/set up in your system?

Oracle JDK vs Open JDK

- Java

  - A specification. There are more than one implementations and packaging.

  - https://docs.oracle.com/javase/specs/index.html

- Oracle JDK

  - https://www.oracle.com/java/technologies/javase-downloads.html

- Open JDK

  - https://openjdk.java.net/

- But, wait!!!

Java Version

- For this class, Java 11 or 17 LTS is required.

  - https://www.oracle.com/java/technologies/javase/jdk11-archive-downloads.html

  - https://www.oracle.com/java/technologies/downloads/#java17

Verify JRE is Present

- On Command Line

  - java -version

Verify JDK is Present

- On Command Line (screen shots are dated)

  - javac -version

Verify Versions of JVM and Java Compiler

- On command line (screen shots are dated)


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Command Prompt                                          —    □    ×

C:\Users\hui>java -version
java version "1.8.0_301"
Java(TM) SE Runtime Environment (build 1.8.0_301-b09)
Java HotSpot(TM) 64-Bit Server VM (build 25.301-b09, mixed mode)

C:\Users\hui>javac -version
javac 14.0.2

C:\Users\hui>_
```

```
Command Prompt                                          —    □    ×

C:\Applications\Java>java -version
openjdk version "16.0.2" 2021-07-20
OpenJDK Runtime Environment (build 16.0.2+7-67)
OpenJDK 64-Bit Server VM (build 16.0.2+7-67, mixed mode, sharing)

C:\Applications\Java>javac -version
javac 16.0.2

C:\Applications\Java>_
```

Trouble with JDK?

- "I have installed JDK, but still I got this!"

- You need to set up the search path for JDK's executables (such as, javac)
  - System specific, but we will do it via the user profile of "Git Bash"

In-Class Exercise

- Let's complete the following tasks

    - Open a terminal

    - Show working directory

    - Display content in the working directory

    - Switch to a different directory

    - Create a directory

    - Delete the directory

    - Verify if JRE is present

    - Verify if JDK is present (if inaccessible on command line, it is OK for this exercise; we shall address this in a little while)

    - Write a short manual about the steps in the journal in directory C0826

In-Class Exercise

1. Create a folder (i.e., directory) , such as "CISC3115" somewhere on your computer

2. In the "CISC3115" directory, create a subfolder (i.e., subdirectory), e.g., for today, create the "C0829" folder.

3. Go to the directory ("cd C0829")

4. Create a batch file (on Windows systems)/shell script (on UNIX systems)

   - Windows

     echo java -version > checkjava.cmd

     echo javac -version > checkjavac.cmd

   - UNIX

     echo "java -version" > checkjava.sh

     echo "javac -version" > checkjavac.sh

Questions?

- Do you have any questions?

- Is there any tasks you wish to do, but not introduced in the class?