CS 149

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(adapted from slides originally developed by Alvin Chao)

Java Primitive Types

Keyword	Size	Min Value	Max Value
byte	1 byte	-128	127
short	2 bytes	-32,768	32,767
int	4 bytes	-2^{31}	$2^{31} - 1$
long	8 bytes	-2^{63}	$2^{63} - 1$
float	4 bytes	$\pm 3.4 \times 10^{-38}$	$\pm 3.4 \times 10^{38}$
double	8 bytes	$\pm 1.7 \times 10^{-308}$	$\pm 1.7 \times 10^{308}$
boolean	Depends on JVM	false	true
char	2 bytes	'\u0000'	'\uffff'

Primitive assignment

- When does Java allow you to assign one type of primitive to another?

```java
int int_ = 3;
long long_ = 3L;
float float_ = 3.0F;
double double_ = 3.0;

int_ = int_;
int_ = long_;        // illegal
int_ = float_;       // illegal
int_ = double_;      // illegal

long_ = int_;
long_ = long_;
long_ = float_;      // illegal
long_ = double_;     // illegal
```

```java
float_ = int_;
float_ = long_;
float_ = float_;
float_ = double_;    // illegal

double_ = int_;
double_ = long_;
double_ = float_;
double_ = double_;

int_ = '0';
int_ = false;        // illegal
double_ = '0';
double_ = false;     // illegal
```

Variable Assignments

byte miles;
short minutes;
int checking;
long days;
float total;
double sum;
boolean flag;
char letter;

Which of these is not allowed?

checking = 56000;

total = 0;

sum = total;

total = sum;

checking = miles;

sum = checking;

flag = minutes;

days = '0';

JShell – Java Shell Tool

- Available in JAVA version 9 (or higher)

- Jshell is a Read-Evaluate-Print-Loop (REPL) tool

- Runs statements immediately

Basic JShell Commands

- Starting
  - jshell -s

- Saving what you have done (from within jshell)
  - **jshell>** /save <filename>

- Opening a file/script
  - **jshell>** /open <filename>

- Exit JShell
  - **jshell>** /exit
  - In UNIX, typing Ctrl-D on a blank line will also work

JShell Limitations

- Only "//" comments allowed

- No Scanner class input/output

- Passing command line arguments not natively supported

- Multi-lines are not handled well (JShell tries reading/interpreting what you typed in as soon as you hit enter)

- Must end script with /exit

JShell Resources

- https://tryjshell.org

- https://docs.oracle.com/javase/10/jshell/toc.htm

Notes on Exams

Exam 1 – Sept 25th (19 days away!!)

- Please keep up with the reading and videos posted on the class calendar
- Exams will be submitted via canvas, but you MUST be in class to take the exam
- Must use LAB computers.
- Can not use Eclipse
- JGrasp settings –you will need to setup from scratch
- Coding style will not be strictly graded (checkstyle will must likely not be available).

Other Class Notes

- Programming Assignment 1 Due Tomorrow
  - Videos on scanner class available via the class calendar

- Submit and Test Your Program

- Virtual Office Hours from 2:00 pm to 5:00 pm
  - jmu.webex.com (use your e-id and password)

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