Java Shell

Exercises and Solutions

1. What is Java shell?

**Answer:**

The Java shell, which is called JShell in JDK 9, is a command-line tool that provides an interactive way to access the Java programming language. It lets you evaluate snippets of Java code instead of forcing you to write an entire Java program. It is a REPL (Read-Eval-Print loop) for Java. JShell is also an API that you can use to develop an application to provide the same functionality as the JShell command-line tool.

1. What command do you use to start the JShell command-line tool?

**Answer:**

jshell

1. What command do you use to exit the JShell command-line tool?

**Answer:**

/exit

1. What command do you use to print help in the JShell tool?

**Answer:**

/help

1. How does the JShell tool differentiate between snippets and commands?

**Answer:**

All commands start with a forward slash (/) and snippets do not.

1. Why can't you have a package declaration in your snippet that you enter in jshell?

**Answer:**

All snippets in a JShell occur in an internal package named REPL and inside an internal synthetic class. This is the reason that you cannot have a package declaration while entering snippets of code.

1. What command do you use to list all active snippets, all snippets, and all startup snippets?

Answer:

* To list all active snippets: /list
* To list all snippets: /list -all
* To list all startup snippets: /list -start

1. What command do you use to set the module path and the class path in the JShell tool?

**Answer:**

Use the /env command to set up the module path and the class path. Its syntax is as follows:

/env [-class-path <path>] [-module-path <path>]

1. How do you run the previous snippet in jshell?

**Answer:**

The following are the three options to run previous snippet:

* /! command reruns the last snippet
* /<snippet-id> command reruns the snippet identified by <snippet-id>
* /-<n> command reruns the nth last snippet

1. What happens when a checked exception is thrown when you execute a snippet in jshell?

**Answer:**

If a snippet throws a checked exception when it’s executed, jshell will print the stack trace and continue.

1. What key do you use for auto-completing code on the JShell tool?

**Answer:**

There are three auto-complete key combinations:

* Tab: Pressing Tab in the middle of an expression will complete the expression or show possible options
* Shift+Tab+V: Pressing Shift+Tab+V converts an expression into a variable declaration
* Shift+Tab+I: Pressing Shift+Tab+I auto-imports type for unresolvable identifier

1. What key combination do you use to auto-convert an expression into a variable declaration of the appropriate type?

**Answer:**

Shift+Tab+V

1. What key combination do you use to auto-import an unresolved type in a snippet?

**Answer:**

Shift+Tab+I

1. What are the four built-in feedback modes in JShell tool? Which feedback mode are you supposed to use when learning the JShell tool? Can you customize the built-in feedback mode?

**Answer:**

Four predefined feedback modes:

* silent
* concise
* normal
* verbose

When learning jshell, it is recommended to use verbose feedback mode.

Custom feedback mode can be created, but built-in feedback modes cannot be customized.

1. Write the command that sets the feedback mode to verbose for the current and all future sessions.

**Answer:**

/set feedback verbose -retain

1. What is the effect of executing the /reset command?

**Answer:**

Executing /reset command has the following effects:

* All snippets entered in current session are lost
* The startup snippets are re-executed
* The execution state of the tool is restarted
* The jshell configurations that were set using the /set command are retained
* The execution environment set using the /env command is retained

1. What is the effect of executing the /reload command?

**Answer:**

The /reload command resets the jshell state and replays all valid snippets and /drop commands in the same sequence they were entered before. Refer to the "Reloading the JShell State" for a detailed description.

1. What commands do you use to save snippets in a jshell session to a file and load snippets from a file to a jshell session?

**Answer:**

Use the /save command to save commands and snippets to a file. Use the /open command to load previously saved commands and snippets.

* /save <option> <file-path>
* /open <file>

1. Describe the role of the JShell, Snippet, and SnippetEvent classes in the JShell API.

**Answer:**

An instance of the JShell class represents a snippet evaluation engine. This is the main class in the JShell API. A JShell instance maintains the state of all snippets as they are executed.

A snippet is represented by an instance of the Snippet class.

A JShell instance generates snippet events as it executes snippets. A snippet event is represented by an instance of the SnippetEvent interface. A snippet event contains the current and previous statuses of snippets, the value of the snippet for a result-bearing snippet, the source code of the snippet that caused the event, an Exception object if an exception occurred during the snippet execution, etc.

1. How do you create an instance of the JShell class?

**Answer:**

There are two ways to create JShell instances:

* Using static JShell.create() method
* Using a static builder class named JShell.Builder

1. How do you get an instance of the Snippet class in your program?

**Answer:**

JShell returns a List of SnippetEvents when snippet is evaluated. A Snippet instance can be obtained from SnippetEvent using snippet() method.

1. How do you start the JShell tool so that you can use the println() function to print a message instead of using the System.out.println(). Show the command to make this setting permanent in the JShell tool.

**Answer:**

jshell --start PRINTING