

• History of Java

- 1 Who is the inventor of Java?
A: James Gosling
- 2 What was the original name for the Java programming Language?
A: Oak
- 3 In what year was Java officially released (under the name Java)?
A: 1995
- 4 What is the magic number at the start of a Java class file?
A: CAFEBAFE
- 5 What was the name of the web browser written entirely in Java?
A: HotJava

• AWT

- 1 When the user presses and releases the 'a' key while the focus is on a TextField, what AWT events are dispatched?
A: KeyPressed, KeyReleased, KeyTyped
- 2 Does the Java 6 java.awt.SystemTray class work on Mac OS X?
A: Yes
- 3 What are the classes in the java.awt.color package for?
A: Provides classes for color spaces ("color spaces" is the key phrase)
- 4 How do you get the screen resolution?
A: Toolkit.getScreenResolution()
- 5 What does java.awt.Container.validate() do?
A: cause the container to lay out its subcomponents again ("lay out subcomponents" is crucial)

• IO

- 1 What java.io interface signifies that a data source or destination can be closed?
A: Closeable
- 2 DataInputStream extends the interface DataInput. How is EOF signaled for a DataInput read() method?
A: EOFException is thrown
- 3 System.out.format allows you to specify a format string for printing formatted output. When using a format specifier, what is the best way to specify a new line?
A: %n
- 4 As of Java6, what method in Console will prompt for and read the user's existing password?
A: Console.readPassword() or Console.readPassword(String fmt, Object ... args)
"Console" and "readPassword" are crucial
- 5 What does this print?
A: 3

• JDBC

- 1 Name the methods in the java.sql.Statement class that are used to:
 - a) execute SQL select statements
 - b) execute SQL insert, update and delete statements
 - c) execute arbitrary SQL statements
 - d) execute more than one SQL statement specified in Java code, not in a stored procedureA:
 - a: executeQuery
 - b: executeUpdate
 - c: execute
 - d: executeBatch
- 2 By default, JDBC commits changes made by executing SQL statements immediately after they execute. What line of code disables that so the code can decide when to commit or rollback changes in a transaction?
A: setAutoCommit(false);
- 3 What class is used to invoke SQL stored procedures?
A: java.sql.CallableStatement ("CallableStatement" is crucial)

- 4 What class is used to efficiently execute the same statement repeatedly with different "parameter" values?
A: `java.sql.PreparedStatement` ("PreparedStatement" is crucial)
- 5 In JDBC, what class is responsible for selecting the driver that will be used to communicate with a specified database?
A: `java.sql.DriverManager` ("DriverManager" is crucial)

• Swing

- 1 What was the inspiration for the name "Swing"?
A: The Java mascot is "Duke".
Duke Ellington wrote the song
"It Don't Mean A Thing (If it Ain't Got That Swing)"
- 2 Name at least ten Swing components that are typically visible widgets, not just containers for other widgets.
A: Any 10 from:

JButton	JCheckBox	JColorChooser	JComboBox	JFileChooser	JFormattedTextField
JLabel	JList	JMenu	JMenuItem	JPasswordField	JProgressBar
JRadioButton	JRadioButtonMenuItem	JScrollBar	JSlider	JSpinner	JTable
JTextArea	JTextField	JToggleButton	JToolTip	JTree	

- 3 Most Swing components don't store the data they display in the class of the component, but instead get it from an associated object that is referred to as the _____ object for the component.
A: `model`
- 4 Most layout managers are defined in the `java.awt` package. Name one layout manager that is defined in the `javax.swing` package.
A: One of: `BoxLayout`, `GridLayout`, `OverlayLayout`, `ScrollPaneLayout`, `SpringLayout`, `ViewportLayout`
- 5 What class was included in Java 6 to simplify executing long-running tasks off of the event dispatch thread (EDT)?
A: `javax.swing.SwingWorker` ("SwingWorker" is crucial)

• Collections

- 1 Name one non-optional method `java.util.ListIterator` has that `java.util.Iterator` does not.
A: one of `hasPrevious()`, `previous()`, `previousIndex()`, `nextIndex()`
- 2 Can a single-threaded Java program throw a `java.util.ConcurrentModificationException`?
A: Yes
- 3 Does `Map<K, V>` extend `Collection<E>` for some `E`?
A: No
- 4 True/False: A `HashSet` is internally implemented using a `HashMap`.
A: True
- 5 Name three methods of the `java.util.Arrays` utility class.
A: three of:
`asList`, `binarySearch`, `copyOf`, `copyOfRange`, `deepEquals`, `deepHashCode`, `deepToString`, `fill`, `hashCode`, `sort`

• Java 7

- 1 Will some form of closures be in Java 7, if so, what is the project name?
A: Yes, `Project Lambda`.
- 2 What was the name of the project to include a "set of small changes" in Java 7?
A: `Project Coin`
- 3 Which new Java 7 syntax permits annotations to be written in more places, such as generic type arguments: `List<@NonNull Object>?` Programmers can use this syntax to write more informative types, and then tools such as type-checkers can detect and prevent more errors.
A: `Type Annotations (JSR 308)`
- 4 What is the name of the Java 7 project that will create a simple, low-level module system whose design will be focused narrowly upon the goal of modularizing the JDK?
Bonus: Will this module system be supported in the JSE 7?
A: `Project Jigsaw`
Bonus A: No
- 5 What is the name of the new Java 7 language feature that will "allow a language compiler to compile a non-Java call site with a language-specific handler which determines call site linkage at runtime. Linkage can be

sensitive to dynamic argument types, and can be updated or revoked over time."

A: `InvokeDynamic` (JSR 292)

• Concurrency

- 1 What is the class in `java.util.concurrent` that provides an Integer that may be atomically updated?

A: `AtomicInteger`

- 2 What `java.util.concurrent` Interface does a concurrent programmer keep going back to when needing to represent the result of an asynchronous computation?

A: `Future`

- 3 What reusable synchronization aid allows a set of threads to wait for each other to reach a common barrier point?

A: `CyclicBarrier`

- 4 Two `java.util.concurrent` Interfaces extend the `java.util.concurrent.Executor` Interface. Name one.

A: Either `ExecutorService` or `ScheduledExecutorService`

- 5 `CopyOnWriteArraySet` is a thread-safe Set in which all mutative operations are implemented by making a fresh copy. What is the `java.util.concurrent` class used to implement `CopyOnWriteArraySet`?

A: `CopyOnWriteArrayList`

• Java Persistence API

- 1 What three classes must you use (perhaps only once) in order to create a Transaction?

A: `EntityManagerFactory`, `EntityManager`, `EntityTransaction`

- 2 Which two annotations are required to make a Java object persistable using JPA?

A: `@Entity` and `@Id`

- 3 Name 3 of the 4 basic relationship mapping annotations

A: any 3 of: `@OneToOne`, `@ManyToOne`, `@OneToMany`, `@ManyToMany`

- 4 Name the two main classes used to find persistent objects via JPA

A: `Query` and `NamedQuery`

- 5 Name one of the two JPA annotations that can be used to fine-tune the `@GeneratedValue` annotation

A: Either `@SequenceGenerator` or `@TableGenerator`

• Code Quizzes

• Code Quiz 3

- What is the output of the following program when it is invoked using this command line: `java TestClass Now` is the time.

A: (B) or "is"

• Code Quiz 6

- What is the value of the variable 'a' after executing the following statements:

A: (C) or 5