

Unit 1: Introduction to Java

1. What is Java Bytecode?
 - a) Executable code
 - b) Machine code
 - c) **Intermediate code**
 - d) Assembly code
2. Which of the following is NOT a feature of Java?
 - a) Platform-independent
 - b) Object-oriented
 - c) **Procedure-oriented**
 - d) Multithreaded
3. What is the role of the Java Virtual Machine (JVM)?
 - a) Compile Java code
 - b) **Execute Bytecode**
 - c) Write Java programs
 - d) Debug Java programs
4. Which of the following is a Java keyword?
 - a) **class**
 - b) struct
 - c) include
 - d) define
5. What is the extension of a Java source file?
 - a) .class
 - b) .exe
 - c) **.java**
 - d) .jar
6. Which command is used to compile a Java program?
 - a) java
 - b) **javac**
 - c) javadoc
 - d) jvm
7. What is the default value of an uninitialized integer variable in Java?
 - a) null
 - b) 0.0
 - c) **0**
 - d) undefined
8. Which of the following is a valid Java identifier?
 - a) 1variable
 - b) variable-name
 - c) **variableName**
 - d) variable name
9. What is the main purpose of the `public static void main(String[] args)` method in Java?
 - a) To define a class
 - b) **To start the execution of a Java program**
 - c) To compile a Java program
 - d) To debug a Java program

10. Which of the following is NOT a Java primitive data type?

- a) int
- b) float
- c) **String**
- d) boolean

Unit 2: Tokens, Expressions, and Control Structures

1. Which of the following is a valid declaration of a boolean variable in Java?

- a) boolean b = 1;
- b) **boolean b = true;**
- c) boolean b = "true";
- d) boolean b = True;

2. What is the result of `10 % 3` in Java?

- a) 0
- b) **1**
- c) 3
- d) 10

3. Which operator is used for logical AND in Java?

- a) &
- b) **&&**
- c) ||
- d) |

4. What is the default value of a boolean variable in Java?

- a) null
- b) **false**
- c) true
- d) 0

5. Which of the following is NOT a valid control structure in Java?

- a) if-else
- b) switch
- c) **repeat-until**
- d) for

6. What is the output of `System.out.println(5 > 3 ? "Yes" : "No");` ? a) No

- b) **Yes**
- c) true
- d) false

7. Which of the following is a valid way to declare an array in Java?

- a) `int arr[] = new int[5];`
- b) `int[] arr = new int[5];`
- c) `int arr = new int[5];`
- d) **Both a and b**

8. What is the purpose of the `break` statement in Java?

- a) To terminate the program
- b) **To exit a loop or switch statement**
- c) To skip the current iteration
- d) To return a value

9. Which of the following is a valid Java comment?
- a)
 - b) **// Comment**
 - c) /* Comment
 - d) ** Comment **
10. What is the result of `System.out.println(10 + 20 + "30");` ? a) 3030
- b) **3030**
 - c) 60
 - d) 102030
-

Unit 3: Object-Oriented Programming Concepts

1. What is the keyword used to create an instance of a class in Java?
- a) class
 - b) **new**
 - c) this
 - d) instance
2. Which of the following is NOT a principle of OOP?
- a) Encapsulation
 - b) Inheritance
 - c) Polymorphism
 - d) **Compilation**
3. What is the purpose of the `this` keyword in Java?
- a) To create a new object
 - b) **To refer to the current object**
 - c) To call a superclass method
 - d) To define a constructor
4. Which of the following is true about constructors in Java?
- a) They can return a value
 - b) They can be inherited
 - c) **They have the same name as the class**
 - d) They can be static
5. What is method overloading in Java?
- a) Defining multiple methods with the same name but different return types
 - b) **Defining multiple methods with the same name but different parameters**
 - c) Defining multiple methods with the same name and parameters
 - d) Defining multiple methods with different names
6. What is the default access modifier for a class in Java?
- a) public
 - b) private
 - c) **package-private (default)**
 - d) protected
7. Which of the following is true about recursion in Java?
- a) It is faster than iteration
 - b) **It involves a method calling itself**
 - c) It cannot be used with methods
 - d) It is not supported in Java

8. What is the purpose of the `super` keyword in Java?
- a) To create a new object
 - b) **To refer to the superclass**
 - c) To call a subclass method
 - d) To define a constructor
9. Which of the following is true about inner classes in Java?
- a) They cannot access outer class members
 - b) **They can access outer class members**
 - c) They are always static
 - d) They cannot be instantiated
10. What is the output of the following code?

```
class Test {  
    int x = 10;  
    void display() {  
        System.out.println(x);  
    }  
}  
  
public class Main {  
    public static void main(String[] args) {  
        Test t = new Test();  
        t.display();  
    }  
}
```

- a) 0
- b) **10**
- c) null
- d) Compilation error

Unit 4: Inheritance & Packaging

1. Which keyword is used to implement inheritance in Java?
- a) implements
 - b) **extends**
 - c) inherits
 - d) super
2. What is the purpose of the `super` keyword in Java?
- a) To create a new object
 - b) **To refer to the superclass**
 - c) To call a subclass method
 - d) To define a constructor
3. Which of the following is true about method overriding in Java?
- a) It is done in the same class
 - b) **It requires the method name and parameters to be the same**
 - c) It is not allowed in Java
 - d) It does not involve inheritance
4. What is the root class of all classes in Java?
- a) **String**

- b) **Object**
 - c) Class
 - d) Main
5. Which of the following is true about abstract classes in Java?
- a) They cannot have constructors
 - b) **They cannot be instantiated**
 - c) They cannot have methods
 - d) They cannot be inherited
6. What is the purpose of the `final` keyword in Java?
- a) To make a class abstract
 - b) **To prevent inheritance or overriding**
 - c) To make a class static
 - d) To make a class private
7. Which of the following is true about packages in Java?
- a) They cannot contain classes
 - b) **They help in organizing classes**
 - c) They are not supported in Java
 - d) They cannot be imported
8. What is the purpose of the `import` statement in Java?
- a) To define a package
 - b) **To include classes from other packages**
 - c) To create a new package
 - d) To compile a Java program
9. Which of the following is true about interfaces in Java?
- a) They can have constructors
 - b) **They can have abstract methods**
 - c) They cannot be implemented
 - d) They cannot have variables
10. What is the output of the following code?

```
class A {  
    void display() {  
        System.out.println("Class A");  
    }  
}  
class B extends A {  
    void display() {  
        System.out.println("Class B");  
    }  
}  
public class Main {  
    public static void main(String[] args) {  
        A obj = new B();  
        obj.display();  
    }  
}
```

- a) Class A
- b) **Class B**

- c) Compilation error
- d) Runtime error

Unit 5: Handling Error/Exception

1. Which keyword is used to handle exceptions in Java?
 - a) try
 - b) catch
 - c) finally
 - d) **All of the above**
2. What is the purpose of the `finally` block in Java?
 - a) To handle exceptions
 - b) **To execute code regardless of whether an exception occurs**
 - c) To throw exceptions
 - d) To define custom exceptions
3. Which of the following is a checked exception in Java?
 - a) `NullPointerException`
 - b) **`IOException`**
 - c) `ArithmeticException`
 - d) `ArrayIndexOutOfBoundsException`
4. What is the purpose of the `throw` keyword in Java?
 - a) To handle exceptions
 - b) **To explicitly throw an exception**
 - c) To define a custom exception
 - d) To catch exceptions
5. Which of the following is true about custom exceptions in Java?
 - a) They cannot extend the `Exception` class
 - b) **They must extend the `Exception` class or its subclasses**
 - c) They cannot be thrown
 - d) They are always unchecked exceptions
6. What is the output of the following code?

```
public class Main {  
    public static void main(String[] args) {  
        try {  
            int x = 10 / 0;  
        } catch (ArithmeticException e) {  
            System.out.println("Exception caught");  
        } finally {  
            System.out.println("Finally block executed");  
        }  
    }  
}
```

- a) Exception caught
- b) Finally block executed
- c) **Both a and b**
- d) Compilation error

7. Which of the following is true about the `throws` keyword in Java?
- a) It is used to handle exceptions
 - b) **It is used to declare exceptions that a method might throw**
 - c) It is used to throw exceptions
 - d) It is used to define custom exceptions
8. What is the purpose of the `try-with-resources` statement in Java?
- a) To handle exceptions
 - b) **To automatically close resources after use**
 - c) To define custom exceptions
 - d) To throw exceptions
9. Which of the following is NOT a runtime exception in Java?
- a) `NullPointerException`
 - b) `ArithmeticException`
 - c) **`IOException`**
 - d) `ArrayIndexOutOfBoundsException`
10. What is the output of the following code?

```
public class Main {  
    public static void main(String[] args) {  
        try {  
            throw new Exception("Custom Exception");  
        } catch (Exception e) {  
            System.out.println(e.getMessage());  
        }  
    }  
}
```

- a) Custom Exception
- b) **Custom Exception**
- c) Compilation error
- d) Runtime error

Unit 6: Handling Strings

1. Which of the following is a valid way to create a String in Java?
- a) `String s = new String("Hello");`
 - b) `String s = "Hello";`
 - c) **Both a and b**
 - d) None of the above
2. What is the output of `"Hello".length()` ?
- a) 4
 - b) **5**
 - c) 6
 - d) Compilation error
3. Which method is used to concatenate two strings in Java?
- a) `concat()`
 - b) `+` operator
 - c) **Both a and b**
 - d) None of the above

4. What is the output of `"Hello".charAt(1)` ? a) H
b) **e**
c) 1
d) o
5. Which of the following is true about the `StringBuffer` class in Java?
a) It is immutable
b) **It is mutable**
c) It cannot be modified
d) It is slower than `String`
6. What is the output of `"Hello".equals("hello")` ? a) true
b) **false**
c) Compilation error
d) Runtime error
7. Which method is used to convert a `String` to lowercase in Java?
a) `toLowerCase()`
b) `toLower()`
c) **`toLowerCase()`**
d) `lowerCase()`
8. What is the output of `"Hello".substring(1, 3)` ? a) He
b) **el**
c) llo
d) Compilation error
9. Which of the following is true about the `StringBuilder` class in Java?
a) It is immutable
b) **It is mutable**
c) It is slower than `StringBuffer`
d) It cannot be modified
10. What is the output of `"Hello".indexOf('l')` ? a) 1
b) **2**
c) 3
d) 4
-

Unit 7: Threads

1. Which of the following is a way to create a thread in Java?
a) Extending `Thread` class
b) Implementing `Runnable` interface
c) **Both a and b**
d) None of the above
2. What is the default priority of a thread in Java?
a) 1
b) **5**
c) 10
d) 0
3. Which method is used to start a thread in Java?
a) `run()`

- b) **start()**
- c) execute()
- d) begin()

4. What is the purpose of the `synchronized` keyword in Java?
- a) To create a new thread
 - b) **To prevent multiple threads from accessing a resource simultaneously**
 - c) To stop a thread
 - d) To define a thread
5. Which method is used to pause a thread in Java?
- a) stop()
 - b) **sleep()**
 - c) pause()
 - d) wait()
6. What is the output of the following code?

```
class MyThread extends Thread {  
    public void run() {  
        System.out.println("Thread is running");  
    }  
}  
  
public class Main {  
    public static void main(String[] args) {  
        MyThread t = new MyThread();  
        t.start();  
    }  
}
```

- a) Compilation error
 - b) Runtime error
 - c) **Thread is running**
 - d) No output
7. Which of the following is true about thread priorities in Java?
- a) They cannot be changed
 - b) **They range from 1 to 10**
 - c) They are always 5
 - d) They are not supported
8. What is the purpose of the `join()` method in Java?
- a) To start a thread
 - b) **To wait for a thread to finish execution**
 - c) To stop a thread
 - d) To pause a thread
9. Which of the following is true about deadlock in Java?
- a) It occurs when a thread is paused
 - b) **It occurs when two or more threads are waiting for each other**
 - c) It occurs when a thread is stopped
 - d) It occurs when a thread is started
10. What is the output of the following code?

```

class MyThread implements Runnable {
    public void run() {
        System.out.println("Thread is running");
    }
}

public class Main {
    public static void main(String[] args) {
        MyThread t = new MyThread();
        Thread thread = new Thread(t);
        thread.start();
    }
}

```

- a) Compilation error
- b) Runtime error
- c) **Thread is running**
- d) No output

Unit 8: I/O and Streams

1. Which package is used for file I/O operations in Java?
 - a) java.util
 - b) **java.io**
 - c) java.net
 - d) java.awt
2. Which of the following is a character stream class in Java?
 - a) FileInputStream
 - b) **FileReader**
 - c) FileOutputStream
 - d) DataInputStream
3. What is the purpose of the File class in Java?
 - a) To read data from a file
 - b) **To represent a file or directory path**
 - c) To write data to a file
 - d) To delete a file
4. Which method is used to read a line of text from a file in Java?
 - a) read()
 - b) **readLine()**
 - c) readAll()
 - d) readFile()
5. What is the purpose of the Serializable interface in Java?
 - a) To read data from a file
 - b) **To enable object serialization**
 - c) To write data to a file
 - d) To delete a file
6. Which of the following is true about byte streams in Java?
 - a) They handle Unicode characters
 - b) **They handle binary data**

- c) They are slower than character streams
- d) They cannot be used for file I/O

7. What is the output of the following code?

```
import java.io.*;
public class Main {
    public static void main(String[] args) throws IOException {
        FileWriter fw = new FileWriter("test.txt");
        fw.write("Hello");
        fw.close();
    }
}
```

- a) Compilation error
 - b) Runtime error
 - c) **A file named "test.txt" is created with the content "Hello"**
 - d) No output
8. Which method is used to write data to a file in Java?
- a) read()
 - b) **write()**
 - c) readLine()
 - d) readAll()
9. What is the purpose of the `BufferedReader` class in Java?
- a) To write data to a file
 - b) **To read data efficiently from a file**
 - c) To delete a file
 - d) To represent a file path
10. Which of the following is true about deserialization in Java?
- a) It converts an object into a byte stream
 - b) **It converts a byte stream into an object**
 - c) It deletes an object
 - d) It writes data to a file

Unit 9: Understanding Core Packages

1. Which package contains the `Math` class in Java?
 - a) `java.util`
 - b) **`java.lang`**
 - c) `java.io`
 - d) `java.awt`
2. What is the output of `Math.sqrt(16)`?
 - a) 2
 - b) **4**
 - c) 8
 - d) 16
3. Which of the following is a wrapper class in Java?
 - a) `int`
 - b) **`Integer`**

- c) float
- d) double

4. What is the purpose of the `Vector` class in Java?
- a) To store key-value pairs
 - b) **To store a dynamic array of objects**
 - c) To store unique elements
 - d) To store sorted elements
5. Which of the following is true about the `Hashtable` class in Java?
- a) It allows null keys and values
 - b) **It does not allow null keys or values**
 - c) It is not synchronized
 - d) It stores elements in sorted order
6. What is the output of the following code?

```
import java.util.*;
public class Main {
    public static void main(String[] args) {
        Random rand = new Random();
        System.out.println(rand.nextInt(10));
    }
}
```

- a) A random number between 0 and 10
 - b) **A random number between 0 and 9**
 - c) Compilation error
 - d) Runtime error
7. Which of the following is true about the `Stack` class in Java?
- a) It follows FIFO (First In First Out)
 - b) **It follows LIFO (Last In First Out)**
 - c) It allows null values
 - d) It is not synchronized
8. What is the purpose of the `Enumeration` interface in Java?
- a) To store key-value pairs
 - b) **To iterate over a collection of elements**
 - c) To store unique elements
 - d) To store sorted elements
9. Which of the following is true about the `Random` class in Java?
- a) It generates the same sequence of numbers every time
 - b) **It generates a different sequence of numbers every time**
 - c) It cannot generate random numbers
 - d) It is not part of the `java.util` package
10. What is the output of the following code?

```
import java.util.*;
public class Main {
    public static void main(String[] args) {
        Vector<Integer> v = new Vector<>();
        v.add(10);
    }
}
```

```
v.add(20);
System.out.println(v.get(1));
}
}
```

- a) 10
- b) **20**
- c) Compilation error
- d) Runtime error

Unit 10: Holding Collection of Data

1. Which of the following is a collection interface in Java?
 - a) ArrayList
 - b) **List**
 - c) HashSet
 - d) TreeSet
2. What is the purpose of the `Iterator` interface in Java?
 - a) To store elements
 - b) **To iterate over a collection of elements**
 - c) To sort elements
 - d) To remove elements
3. Which of the following is true about the `ArrayList` class in Java?
 - a) It does not allow duplicate elements
 - b) **It allows duplicate elements**
 - c) It is synchronized
 - d) It stores elements in sorted order
4. What is the output of the following code?

```
import java.util.*;
public class Main {
    public static void main(String[] args) {
        List<String> list = new ArrayList<>();
        list.add("Java");
        list.add("Python");
        System.out.println(list.get(1));
    }
}
```

- a) Java
 - b) **Python**
 - c) Compilation error
 - d) Runtime error
5. Which of the following is true about the `HashSet` class in Java?
 - a) It allows duplicate elements
 - b) **It does not allow duplicate elements**
 - c) It stores elements in sorted order
 - d) It is synchronized

6. What is the purpose of the `Comparator` interface in Java?
- a) To store elements
 - b) **To define custom sorting logic**
 - c) To iterate over elements
 - d) To remove elements
7. Which of the following is true about the `TreeSet` class in Java?
- a) It does not allow duplicate elements
 - b) **It stores elements in sorted order**
 - c) It is not synchronized
 - d) It allows null values
8. What is the output of the following code?

```
import java.util.*;
public class Main {
    public static void main(String[] args) {
        Set<Integer> set = new HashSet<>();
        set.add(10);
        set.add(20);
        set.add(10);
        System.out.println(set.size());
    }
}
```

- a) 1
 - b) **2**
 - c) 3
 - d) Compilation error
9. Which of the following is true about the `Map` interface in Java?
- a) It stores elements in sorted order
 - b) **It stores key-value pairs**
 - c) It does not allow duplicate keys
 - d) It is not part of the `java.util` package
10. What is the output of the following code?

```
import java.util.*;
public class Main {
    public static void main(String[] args) {
        Map<String, Integer> map = new HashMap<>();
        map.put("Java", 10);
        map.put("Python", 20);
        System.out.println(map.get("Python"));
    }
}
```

- a) 10
 - b) **20**
 - c) Compilation error
 - d) Runtime error
-

Unit 11: Java Applications

1. Which of the following is a Swing component in Java?
 - a) Frame
 - b) **JFrame**
 - c) Window
 - d) Panel
2. What is the purpose of the JButton class in Java?
 - a) To display text
 - b) **To create a clickable button**
 - c) To display images
 - d) To create a text field
3. Which of the following is true about event handling in Java?
 - a) It is not supported in Swing
 - b) **It involves listeners and events**
 - c) It cannot be used with buttons
 - d) It is not part of the AWT package
4. What is the purpose of the FlowLayout manager in Java?
 - a) To arrange components in a grid
 - b) **To arrange components in a flow**
 - c) To arrange components in a border
 - d) To arrange components in a stack
5. Which of the following is true about the JTextField class in Java?
 - a) It is used to display images
 - b) **It is used to accept user input**
 - c) It is not part of Swing
 - d) It cannot be added to a frame
6. What is the purpose of the JCheckBox class in Java?
 - a) To display text
 - b) **To create a checkbox**
 - c) To display images
 - d) To create a button
7. Which of the following is true about the JComboBox class in Java?
 - a) It is used to display images
 - b) **It is used to create a dropdown list**
 - c) It is not part of Swing
 - d) It cannot be added to a frame
8. What is the purpose of the JMenuBar class in Java?
 - a) To display text
 - b) **To create a menu bar**
 - c) To display images
 - d) To create a button
9. Which of the following is true about the JTable class in Java?
 - a) It is used to display images
 - b) **It is used to display data in tabular form**
 - c) It is not part of Swing
 - d) It cannot be added to a frame

10. What is the purpose of the `JDesktopPane` class in Java?
- a) To display text
 - b) **To create a multi-document interface (MDI)**
 - c) To display images
 - d) To create a button
-

Unit 12: Introduction to Java Applets

1. Which of the following is a lifecycle method of an applet?
 - a) `start()`
 - b) `stop()`
 - c) `init()`
 - d) **All of the above**
2. What is the purpose of the `Applet` class in Java?
 - a) To create a standalone application
 - b) **To create an applet**
 - c) To create a Swing application
 - d) To create a console application
3. Which of the following is true about applets in Java?
 - a) They cannot be run in a browser
 - b) **They are embedded in web pages**
 - c) They are not part of Java
 - d) They cannot use graphics
4. What is the purpose of the `paint()` method in an applet?
 - a) To initialize the applet
 - b) **To draw graphics on the applet**
 - c) To start the applet
 - d) To stop the applet
5. Which of the following is true about the `AppletViewer` tool in Java?
 - a) It is used to compile applets
 - b) **It is used to run applets**
 - c) It is not part of Java
 - d) It cannot be used with applets
6. What is the output of the following code?

```
import java.applet.*;
import java.awt.*;
public class MyApplet extends Applet {
    public void paint(Graphics g) {
        g.drawString("Hello", 50, 50);
    }
}
```

- a) Compilation error
- b) Runtime error
- c) **"Hello" is displayed at (50, 50)**
- d) No output

7. Which of the following is true about animation in applets?
- a) It is not supported
 - b) **It can be achieved using threads**
 - c) It cannot use graphics
 - d) It is not part of Java
8. What is the purpose of the `repaint()` method in an applet?
- a) To initialize the applet
 - b) **To refresh the applet display**
 - c) To start the applet
 - d) To stop the applet
9. Which of the following is true about the `Graphics` class in Java?
- a) It is used to create buttons
 - b) **It is used to draw graphics**
 - c) It is not part of the AWT package
 - d) It cannot be used in applets
10. What is the output of the following code?

```
import java.applet.*;
import java.awt.*;
public class MyApplet extends Applet {
    public void paint(Graphics g) {
        g.drawRect(50, 50, 100, 100);
    }
}
```

- a) Compilation error
- b) Runtime error
- c) **A rectangle is drawn at (50, 50)**
- d) No output

Unit 13: Database Programming using JDBC

1. Which of the following is a JDBC interface?
- a) Connection
 - b) Statement
 - c) ResultSet
 - d) **All of the above**
2. What is the purpose of the `Connection` interface in JDBC?
- a) To execute SQL queries
 - b) **To establish a connection to a database**
 - c) To store query results
 - d) To close the database
3. Which of the following is true about the `Statement` interface in JDBC?
- a) It is used to establish a connection
 - b) **It is used to execute SQL queries**
 - c) It is used to store query results
 - d) It is used to close the database

4. What is the purpose of the `ResultSet` interface in JDBC?
- a) To establish a connection
 - b) To execute SQL queries
 - c) **To store and retrieve query results**
 - d) To close the database
5. Which of the following is true about the `DriverManager` class in JDBC?
- a) It is used to execute SQL queries
 - b) **It is used to manage database drivers**
 - c) It is used to store query results
 - d) It is used to close the database
6. What is the output of the following code?

```
import java.sql.*;
public class Main {
    public static void main(String[] args) throws SQLException {
        Connection conn =
        DriverManager.getConnection("jdbc:mysql://localhost:3306/test", "root",
        "password");
        System.out.println("Connection established");
    }
}
```

- a) Compilation error
 - b) Runtime error
 - c) **Connection established**
 - d) No output
7. Which of the following is true about the `PreparedStatement` interface in JDBC?
- a) It is used to establish a connection
 - b) **It is used to execute parameterized SQL queries**
 - c) It is used to store query results
 - d) It is used to close the database
8. What is the purpose of the `executeQuery()` method in JDBC?
- a) To establish a connection
 - b) **To execute a SELECT query**
 - c) To execute an UPDATE query
 - d) To close the database
9. Which of the following is true about the `executeUpdate()` method in JDBC?
- a) It is used to execute a SELECT query
 - b) **It is used to execute INSERT, UPDATE, or DELETE queries**
 - c) It is used to establish a connection
 - d) It is used to close the database
10. What is the output of the following code?

```
import java.sql.*;
public class Main {
    public static void main(String[] args) throws SQLException {
        Connection conn =
        DriverManager.getConnection("jdbc:mysql://localhost:3306/test", "root",
        "password");
    }
}
```

```
Statement stmt = conn.createStatement();
ResultSet rs = stmt.executeQuery("SELECT * FROM employees");
while (rs.next()) {
    System.out.println(rs.getString("name"));
}
}
```

- a) Compilation error
 - b) Runtime error
 - c) **The names of all employees are printed**
 - d) No output
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