# Topics for the Oracle Certified Associate, Java SE 8 Programmer Certification

## Java Basics

- Define the scope of variables  
  - CSA Unit 1.2
- Define the structure of a Java class  
  - CSA Unit 2.5
- Create executable Java applications with a main method; run a Java program from the command line; produce console output  
  - CSA Unit 1.1, 3.7
- Import other Java packages to make them accessible in your code  
  - CSA Unit 1.2
- Compare and contrast the features and components of Java such as: platform independence, object orientation, encapsulation, etc.  
  - CSA Unit 1.1

## Working With Java Data Types

- Declare and initialize variables (including casting of primitive data types)  
  - CSA Unit 1.1
- Differentiate between object reference variables and primitive variables  
  - CSA Unit 1.1, 2.2
- Know how to read or write to object fields  
  - CSA Unit 1.2
- Explain an Object’s Lifecycle (creation, “dereference by reassignment” and garbage collection)  
  - Java Certification Topic 7
- Develop code that uses wrapper classes such as Boolean, Double, and Integer  
  - CSA Unit 1.2

## Using Operators and Decision Constructs

- Use Java operators; use parentheses to override operator precedence  
  - CSA Unit 1.1
- Test equality between Strings and other objects using == and equals()  
  - CSA Unit 1.3
- Know how to read or write to object fields  
  - CSA Unit 1.3
- Create if and if/else and ternary constructs  
  - CSA Unit 1.3
- Use a switch statement  
  - Java Certification Topic 2
Creating and Using Arrays

Declare, instantiate, initialize and use a one-dimensional array

Declare, instantiate, initialize and use multi-dimensional arrays

Using Loop Constructs

Create and use while loops

Create and use for loops including the enhanced for loop

Create and use do/while loops

Compare loop constructs

Use break and continue

Working with Methods and Encapsulation

Create methods with arguments and return values; including overloaded methods

Apply the static keyword to methods and fields

Create and overload constructors; differentiate between default and user defined constructors

Apply access modifiers

Apply encapsulation principles to a class

Determine the effect upon object references and primitive values when they are passed into methods that change the values
Working with Inheritance

Describe inheritance and its benefits

Develop code that makes use of polymorphism; develop code that overrides methods; differentiate between the type of a reference and the type of an object

Determine when casting is necessary

Use super and this to access objects and constructors

Use abstract classes and interfaces

Handling Exceptions

Differentiate among checked exceptions, unchecked exceptions, and Errors

Create a try-catch block and determine how exceptions alter normal program flow

Describe the advantages of Exception handling

Create and invoke a method that throws an exception

Recognize common exception classes (such as NullPointerException, ArithmeticException, ArrayIndexOutOfBoundsException, ClassCastException)

Working with Selected classes from the Java API

Manipulate data using the StringBuilder class and its methods

Create and manipulate Strings

Create and manipulate calendar data using classes from java.time. LocalDateTime, java.time.LocalDate, java.time.LocalDateTime, java.time.format.DateTimeFormatter, java.time.Period

Declare and use an ArrayList of a given type

Write a simple Lambda expression that consumes a Lambda Predicate expression