**Name:**

| Topic | Detail |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Java Basic |  |  |  |  |  |  |
|  | Define the scope of variables |  |  |  |  |  |
|  | Define the structure of a Java class |  |  |  |  |  |
|  | Create executable Java applications with a main method; run a Java program from the command line; produce console output |  |  |  |  |  |
|  | Import other Java packages to make them accessible in your code |  |  |  |  |  |
|  | Compare and contrast the features and components of Java such as: platform independence, object orientation, encapsulation, etc. |  |  |  |  |  |
| Working with Data Types |  |  |  |  |  |  |
|  | Declare and initialize variables (including casting of primitive data types) |  |  |  |  |  |
|  | Differentiate between object reference variables and primitive variables |  |  |  |  |  |
|  | Know how to read or write to object fields |  |  |  |  |  |
|  | Explain an Object's Lifecycle (creation, "dereference by reassignment" and garbage collection) |  |  |  |  |  |
|  | Develop code that uses wrapper classes such as Boolean, Double, and Integer |  |  |  |  |  |
| Using Operators and Decision Constructs | |  |  |  |  |  |
|  | Use Java operators; use parentheses to override operator precedence |  |  |  |  |  |
|  | Test equality between Strings and other objects using == and equals () |  |  |  |  |  |
|  | Create if and if/else and ternary constructs |  |  |  |  |  |
|  | Use a switch statement |  |  |  |  |  |
| 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.LocalTime, 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 |  |  |  |  |  |

<https://education.oracle.com/java-se-8-programmer-i/pexam_1Z0-808>