Appendix C

Exam Topics: Java SE 11 Developer

Please note that all information presented in this appendix is valid as of November 2022. It is imperative that readers visit the exam website mentioned in this appendix regularly while preparing for the exam, as Oracle is known to change the exam objectives intermittently.

Exam Name: *Java SE 11 Developer*	Duration: *90 minutes*
Exam Number: *1Z0-819*	Number of Questions: *50*
Certification: *Oracle Certified*	Passing Score: *68%*
Professional: Java SE 11 Developer	Exam Format: *Multiple Choice*
	Exam Price: *$245*

Candidates must pass the *Java SE 11 Developer* exam in order to qualify as an *Oracle Certified Professional: Java SE 11 Developer*. Pertinent information about this exam can be found at:

Click here to view code image

```
https://education.oracle.com/java-se-11-developer/pexam_1Z0-819
```

The web page also lists the exam topics defined by Oracle. The topics are organized in *sections*, and each section is *reproduced verbatim* in this appendix. For each section, we have provided references to where in the book the exam topics (we call them *objectives*) in the section are covered. In addition, the extensive index at the end of the book can also be used to look up specific topics. General information about taking the exam can be found in **Appendix A**, **p. 1615**. Oracle has also specified certain important assumptions about the exam questions, which can also be found in **Appendix A**.

Section 1: Working with Java data types	**Chapters: 2, 3, 8**
[1.1] Use primitives and wrapper classes, including, operators, the use of parentheses, type promotion and casting	**§2.2**, **p. 41** *to* **§2.19**, **p. 92** **§8.3**, **p. 429**
[1.2] Handle text using String and StringBuilder classes	**§8.4**, **p. 439** **§8.5**, **p. 464**
[1.3] Use local variable type inference, including as lambda parameters	**§3.13**, **p. 142**
Section 2: Controlling Program Flow	**Chapter 4**
[2.1] Create and use loops, if/else, and switch statements	**§4.1**, **p. 152** *to* **§4.8**, **p. 176**
Section 3: Java Object-Oriented Approach	**Chapters: 3, 5, 6, 9, 10, 13**
[3.1] Declare and instantiate Java objects including nested class objects, and explain objects' life-cycles (including creation, dereferencing by reassignment, and garbage collection)	**§9.1**, **p. 491** *to* **§9.6**, **p. 521** **§10.1**, **p. 533** *to* **§10.4**, **p. 537**
[3.2] Define and use fields and methods, including instance, static and overloaded methods	**§3.1**, **p. 99** *to* **§3.8**, **p. 112**
[3.3] Initialize objects and their members using instance and static initialiser statements and constructors	**§3.4**, **p. 102** **§3.7**, **p. 109** **§10.5**, **p. 540** *to* **§10.9**, **p. 555**
[3.4] Understand variable scopes, applying encapsulation and make objects immutable	**§6.1**, **p. 324** **§6.6**, **p. 352** **§6.7**, **p. 356**
[3.5] Create and use subclasses and superclasses, including abstract classes	**§5.1**, **p. 191** *to* **§5.4**, **p. 218**

Section 1: Working with Java data types	**Chapters: 2, 3, 8**
[3.6] Utilize polymorphism and casting to call methods, differentiating object type versus reference type	§5.11, p. 269 §5.12, p. 278
[3.7] Create and use interfaces, identify functional interfaces, and utilize private, static, and default methods	§5.6, p. 237 §13.1, p. 675
[3.8] Create and use enumerations	§5.13, p. 287
Section 4: Exception Handling	**Chapter 7**
[4.1] Handle exceptions in the Java program by using try/ catch/finally clauses, try-with-resource, and multi-catch statements	§7.3, p. 375 §7.6, p. 397 §7.7, p. 407
[4.2] Create and use custom exceptions	§7.2, p. 375
Section 5: Working with Arrays and Collections	**Chapters: 3, 11, 12, 14, 15**
[5.1] Use generics, including wildcards	§11.1, p. 565 *to* §11.13, p. 623
[5.2] Use a Java array and List, Set, Map and Deque collections, including convenience methods	§3.9, p. 117 §12.1, p. 644, *to* §12.8, p. 662. §15.1, p. 783 *to* §15.9, p. 840
[5.3] Sort collections and arrays using Comparator and Comparable interfaces	§14.4, p. 761 §14.5, p. 769 §15.5, p. 810 §15.10, p. 845 §15.11, p. 858 §15.12, p. 865
Section 6: Working with Streams and Lambda	**Chapters: 13, 16**

Section 1: Working with Java data types expressions	**Chapters: 2, 3, 8**
[6.1] Implement functional interfaces using lambda expressions, including interfaces from the java.util.function package	**§13.1, p. 675** *to* **§13.14, p. 733**
[6.2] Use Java Streams to filter, transform and process data	**§16.3, p. 884** *to* **§16.7, p. 946**
[6.3] Perform decomposition and reduction, including grouping and partitioning on sequential and parallel streams	**§16.7, p. 946 §16.8, p. 978 §16.9, p. 1009**
Section 7: Java Platform Module System	**Chapter 19**
[7.1] Deploy and execute modular applications, including automatic modules	**§19.2, p. 1164 §19.6, p. 1186 §19.7, p. 1189 §19.10, p. 1204** *to* **§19.13, p. 1214**
[7.2] Declare, use, and expose modules, including the use of services	**§19.3, p. 1168 §19.4, p. 1177 §19.5, p. 1179 §19.8, p. 1191 §19.9, p. 1196**
Section 8: Concurrency	**Chapters: 22, 23**
[8.1] Create worker threads using Runnable and Callable, and manage concurrency using an ExecutorService and java.util.concurrent API	**§22.3, p. 1371 §23.2, p. 1423**
[8.2] Develop thread-safe code, using different locking mechanisms and java.util.concurrent API	**§23.4, p. 1451** *to* **§23.7, p. 1482**
Section 9: Java I/O API	**Chapters: 20, 21**

Section 1: Working with Java data types	Chapters: 2, 3, 8
[9.1] Read and write console and file data using I/O Streams	§20.1, p. 1233 *to* §20.4, p. 1256
[9.2] Implement serialization and deserialization techniques on Java objects	§20.5, p. 1261
[9.3] Handle file system objects using java.nio.file API	§21.1, p. 1287 *to* §21.8, p. 1345
Section 10: Secure Coding in Java SE Application	Chapter 26
[10.1] Develop code that mitigates security threats such as denial of service, code injection, input validation and ensure data integrity	§26.1, p. 1600 §26.2, p. 1602
[10.2] Secure resource access including filesystems, manage policies and execute privileged code	§26.3, p. 1608 §26.4, p. 1610
Section 11: Database Applications with JDBC	Chapter 24
[11.1] Connect to and perform database SQL operations, process query results using JDBC API	§24.1, p. 1512 *to* §24.8, p. 1545
Section 12: Localization	Chapter 18
[12.1] Implement Localization using Locale, resource bundles, and Java APIs to parse and format messages, dates, and numbers	§18.1, p. 1096 *to* §18.7, p. 1139
Section 13: Annotations	Chapter 25
[13.1] Create, apply, and process annotations	§25.1, p. 1557 *to* §25.6, p. 1587