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Career Services Assignment 3 – Java Flash Cards

Instructions: Research common Java interview questions online and create 20 flash cards from the information you find. Study your flash cards regularly to better prepare for interviews. Fill out the table below with the information you put on each of your flash cards.

Front of Card	Back of Card
How is an Object created?	An object is created by using a special type of method called a constructor. When the constructor is called, it creates an instance of the class, and the memory is allocated for the object.
What are Access Modifiers?	Access Modifiers are Java keywords used to define the access scope of the class, method, or variable. The four Access Modifiers Java uses are: Public: accessible everywhere Private: accessible only within the class; a main part of encapsulation Default: accessible by classes and subclasses within the same package only Protected: accessible within the class, other classes within the same package, and subclasses in a different package
What are the four main principles of object-oriented programming?	Polymorphism; Abstraction, Inheritance; Encapsulation.

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What are the Decision-Making or Selection keywords in Java?	Selection statements are used to control the flow of execution of a program. If a condition is met, some code is executed, if not, the flow continues. if: executes a block of code if a condition is true, otherwise the block of code is not executed. if-else: executes a block of code if a condition is true or executes a different block of code if the condition is false. nested-if: a series of if statements where one if statement is nested inside another if statement. There can be many layers nested inside. if-else-if: similar to if-else, except instead of one else, the next decision is else-if followed by another conditional statement. The else-if can be repeated as many times as needed. As soon as a condition is true, the block of code for that if statement is executed and the flow exits. If none of the conditions are true, the final else statement is executed. switch-case: this decision chooses an option, or case, based on the expression in the switch statement. Each case usually contains a break statement to allow the program flow to exit after the case block of code is executed. There may be a default statement at the end to be executed if no case is selected.
What are the logical operators in Java?	! or NOT: negates the symbol following it, for example != means not equal to. || or OR: returns true if any expression in the statement is true. && or AND: returns true only if ALL expressions in the statement are true.
What is a Class?	Class is a template used to define the properties and behavior of an object that is created from the class.

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What is a Constructor?	A constructor is a special type of method used to create an object. When it is called, the class is instantiated, and the memory is allocated for the object. Creating an object by using the new keyword uses the default constructor of the class.
What is Abstraction?	Abstraction is limiting what the user can see, providing them with only the information they need and hiding complex code from them. The user does not need to know how we calculate their taxes, just how much they must pay.
What is an Interface?	An interface is a blueprint of a class; it contains abstract methods that must be implemented in any class using the interface. It is only a blueprint in that an interface cannot be used to create an object. Each method in an interface is abstract and only a signature; it cannot contain any body. Interfaces overcome the limitation of Inheritance in that a class can implement as many interfaces as necessary.
What is an Object?	An object is the fundamental unit of object-oriented programming. It is the instance of a class with the identity, behavior, and state of the class. It is called Object because it should be thought of as a physical manifestation of a class to help understand how to program the state of the object with fields and the behavior of the object with methods.
What is Data Encapsulation?	Data encapsulation is the concept of hiding a class's attributes and behaviors and controlling which attributes and behaviors can be accessed by other classes. Making the fields/attributes private and providing public getters and setters for those attributes allow the programmer to keep control of the class.

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What is Inheritance?	Inheritance allows classes to acquire, or inherit, or extend, the properties and behavior of another class. This allows the reuse of the code of the Parent class, as well as method overriding to assist in creating polymorphism. A Child class can inherit from only one other class.
What is Polymorphism?	Polymorphism allows classes to take different forms and provide different functionality depending on the context. For example, animals make sounds, so under a parent class of Animal, the subclasses of Cow, Dog, Horse, etc., will each return something different when the Sound method is called.
What is the difference between a while loop and a do-while loop?	In a while loop, the condition is tested before any code is executed. If the condition is not met, the loop exits. In a do-while loop, the body of the loop is executed at least once, then the condition is checked to determine if the code needs to be executed again.
What is the difference between i++ and ++i increment operators?	i++ increments the value after returning the value, and ++i increments the value before returning the value.
What types of Constructors are used in Java?	There are two types of constructors in Java: <u>Default constructor</u>: does not take any parameters and creates the object with the default values. Java provides a default constructor implicitly if there are no other constructors defined. The default constructor must be rewritten by the programmer if any other constructor is created, and the default constructor is still desired; the implicit constructor supplied by Java is removed. <u>Parameterized constructor</u>: created by the programmer; initializes the variables of the object with the values given during the invocation of the constructor.

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When was Java invented and by whom?	Java was developed in 1991 by a team at Sun Microsystems, led by James Gosling.
Why is Java able to be used on any platform?	Java handles code by compiling it first, then converting it to byte code, which can be run on any platform.
Why is Java not a pure object-oriented language?	Since Java supports primitive data type classes, it is not considered a pure object-oriented programming language.
Why use Data Encapsulation?	There are multiple reasons for encapsulation: it prevents modification of the data other than what the programmer wants; it provides security for the private properties and methods of an object; modification can be made to the class without affecting the way other classes use that class.