Selvam College of Technology

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Name of the Bundle	Advanced Bundle V1	Subject	Java Programming V1
Topic	Arrays	Last updated on	20 July 2024

1. What is an Array in Java?

a. A collection of elements with different types

b. A collection of elements with the same type

c. A resizable data structure

d. A container for storing key-value pairs

Ans: b. A collection of elements with the same type

Explanation: An array in Java is a collection of elements of the same type, accessed by their index positions.

2. Which of the following statements about arrays in Java is true?

a. Arrays can store elements of different data types.

b. Arrays automatically resize themselves when elements are added.

c. The size of an array must be specified at the time of declaration.

d. Arrays cannot be passed as arguments to methods.

Ans: c. The size of an array must be specified at the time of declaration.

Explanation: In Java, the size of an array must be declared at the time of its creation and cannot be changed later.

3. What is the index range for the elements of an array in Java?

a) 0 to length − 1

b) 1 to length

c) -1 to length - 1

d) 0 to length

Ans: a. 0 to length - 1

Explanation: The index range for the elements of an array in Java is 0 to length - 1, where length is the number of elements in the array.

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4. How do you access an element in an array in Java?

a. By using the element's value

b. By using the element's index

c. By using the element's key

d. By using the element's label

Ans: b. By using the element's index

Explanation: In Java, you access an element in an array by using the element's index, which represents its position in the array.

5. Java array is a collection of _____.

a. Similar type of elements

b. Different type of element

c. Heterogeneous data

d. Both A and C

Ans: a. Similar type of elements

Explanation: An array is a collection of similar types of elements which has contiguous memory location.

6. In Java, arrays are_____.

a. Objects

b. Object references

c. Primitive data type

d. None of the above

Ans: a. Objects

Explanation: In java an array is a container object that holds a fixed number of values of a single type.

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7. Which of the following is a valid statement?

   a. char [] c = new char ();

   b. char [] c = new char [5];

   c. char [] c = new char (4);

   d. char [] c = new char [];

Ans: b. char [] c = new char [5];

Explanation: The syntax for declaring and creating an array variable in java is:

dataType [] arrayRefVar = newdataType [arraySize];

8. In java, array elements are stored in _____ memory locations.

   a. Random

   b. Sequential

   c. Sequential & Random

   d. Binary search

Ans: b. Sequential

Explanation: Array elements are stored in contiguous memory. Linked List is stored in random memory locations.

9. Index in the array start with _____.

   a. -1

   b. 0

   c. 1

   d. Infinite

Ans: b. 0

Explanation: Index in array starts with 0.

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10. Which of these operators is used to allocate memory to array variables in Java?

    a. malloc

    b. alloc

    c. new

    d. new malloc

Ans: c. new

Explanation: Operator new allocates a block of memory specified by the size of an array, and gives the reference of memory allocated to the array variable.

11. Which of these is an incorrect array declaration?

    a. int arr [] = new int [5]

    b. int [] arr = new int [5]

    c. int arr [] = new int [5]

    d. int arr [] = int [5] new

Ans: d. int arr [] = int [5] new

Explanation: Operator new must be succeeded by array type and array size.

12. How do you determine the number of elements in an array?

int buses [] = new int[5];

    a. buses. length

    b. buses. length ()

    c. buses. size

    d. buses. size ()

Ans: a. buses. length

Explanation: Arrays use the length variable to determine the number of elements.

13. What happens if you access an array element with an out-of-bounds index?

    a. A runtime exception is thrown

    b. The program terminates abruptly

    c. The element value is set to null

    d. The element value is set to 0

Ans: a. A runtime exception is thrown

Explanation: Accessing an out-of-bounds index in an array causes an ArrayIndexOutOfBoundsException to be thrown.

14. Which method is used to copy one array into another in Java?

    a. copy ()

    b. clone ()

    c. System.arraycopy()

    d. Arrays.copy()

Ans: c. System.arraycopy()

Explanation: The System.arraycopy() method is used to copy one array into another in Java, allowing you to efficiently copy elements between arrays.

15. Can the length of an array be changed after its creation in Java?

    a. Yes, by using the resize () method

    b. Yes, by using the length property

    c. No, the length of an array is fixed after creation

    d. No, arrays in Java have a fixed length

Ans: c. No, the length of an array is fixed after creation

Explanation: In Java, once an array is created, its length cannot be changed. The length is fixed and determined at the time of initialization.

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16. Which of the following methods can be used to sort an array of integers in Java?

   a. Arrays.sort(array1);

   b. intArray.sort();

   c. Collections.sort(array1);

   d. Both A and C

Ans: a. Arrays.sort(array1);

Explanation: Arrays.sort(array1); is used to sort arrays of primitive types like int.

Collections.sort(intArray); is used for sorting lists of objects (like List<Integer>), not arrays.

17. What is the default initial value of elements in a boolean array in Java?

   a. false

   b. true

   c. null

   d. 0

Ans: a. false

Explanation: The default initial value of elements in a boolean array in Java is false.

18. Which method is used to assign a new value to the element at index 3 in an array named values?

   a. values.set (3, newValue);

   b. values [3] = newValue;

   c. set (values, 3, newValue);

   d. values. setElement (3, newValue);

Ans: b. values [3] = newValue;

Explanation: Arrays in Java use square brackets [] for accessing elements by index.

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19. How do you iterate through all elements of an array names using a for-each loop?

   a. for (String name: names) {}

   b. for (int i= 0; i< names.size(); i++) {}

   c. for (int i= 0; i< names.length; i++) {}

   d. for (name: names) {}

Ans: a. for (String name: names) {}

Explanation: The for-each loop (for (Type variable: array) syntax) simplifies iterating through arrays and collections.

20. Which of these is necessary to specify at time of array initialization?

   a. Row

   b. Column

   c. Both Row and Column

   d. None of the mentioned

Ans: a. Row

Explanation: You must specify the number of rows when initializing a two-dimensional array; the number of columns can be set later.

21. When you group together related variables, the group is referred to as _____.

   a. Array

   b. List

   c. Relation

   d. Variable group

Ans: a. Array

Explanation: When you group together related variables, the group is referred to as an array of variables or, more simply, an array. Ex: array of all integers.

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22. The act of initializing an array is also called as _____.

    a. Populating an array

    b. Assigning array

    c. Initializing

    d. Factoring and array

Ans: a. Populating an array

Explanation: Initializing an array is also called populating it.

23. What is the highest index of an array with 10 elements in java?

    a. 9

    b. 10

    c. 0

    d. 1

Ans: a. 9

Explanation: In Java, array indices start at 0. So, an array with 10 elements has indices ranging from 0 to 9.

24. How do you declare a 2D array named matrix with 3 rows and 4 columns?

    a. int [] [] matrix = new int [3, 4];

    b. int [] [] matrix = new int [3][4];

    c. int [3][4] matrix = new int [] [];

    d. matrix = new int [3][4];

Ans: b. int [] [] matrix = new int [3][4];

Explanation: This syntax declares a 2D array matrix with 3 rows and 4 columns.

25. What is the purpose of a 2D array in Java?

    a. To store elements of different data types in a structured manner.

    b. To store elements in a linear sequence.

    c. To store elements in a grid-like structure with rows and columns.

    d. To dynamically resize the number of elements based on program execution.

Ans: c. To store elements in a grid-like structure with rows and columns.

Explanation: A 2D array in Java is used to organize elements in a grid format with rows and columns.

26. What is the default initial value of elements in a 2D array of type double in Java?

    a. **0**

    b. **0.0**

    c. null

    d. NaN

Ans: b. 0.0

Explanation: The default initial value of elements in a 2D array of type double in Java is 0.0.

27. What is an advantage of the array data structure?

    a. Elements of mixed data types can be stored.

    b. Easier to access the elements in an array

    c. Index of the first element starts from 1.

    d. Elements of an array cannot be sorted

Ans: b. Easier to access the elements in an array

Explanation: Arrays allow easy access to elements using indices, thanks to their contiguous memory allocation.

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28. In java, how do you remove an element at a specific index from an ArrayList named list?

   a. list. remove(index)

   b. list. delete(index)

   c. list. pop(index)

   d. list. splice(index)

Ans: a. list. remove(index)

Explanation: To remove an element at a specific index from an ArrayList in Java, use list. remove (index). This method shifts the remaining elements to fill the gap.

29. Which of the following is the disadvantage of the array?

   a. Stack and Queue data structures can be implemented through an array.

   b. Index of the first element in an array can be negative

   c. Wastage of memory if the elements inserted in an array are lesser than the allocated size

   d. Elements can be accessed sequentially.

Ans: c. Wastage of memory if the elements inserted in an array are lesser than the allocated size

Explanation: if we have an array of size 10 elements and we have inserted only 5 elements in an array then there is a wastage of 5 memory blocks which cannot be utilized by another variable.

30. Which one of the following is the size of int arr [9] assuming that int is of 4 bytes?

a. 9

b. 36

c. 35

d. None of the above

Ans: b. 36

Explanation: The size of int type data is 4 bytes. The array stores 9 elements, so the size of the array is 9*4=36 bytes.

31. Which one of the following is the process of inserting an element in the stack?

a. Insert

b. Add

c. Push

d. None of the above

Ans: c. Push

Explanation: In stack, the process of inserting an element is known as a push operation.

32. When you pass an array to a method, the method receives_____?

a. A copy of the array.

b. A copy of the first element.

c. The reference of the array.

d. The length of the array.

Ans: c. The reference of the array.

Explanation: When you pass an array to a method in Java, the method receives a copy of the reference to the array.

33. In Java, an array can be declared without initialization without mentioning the size.

    a. TRUE

    b. FALSE

Ans: a. TRUE

Explanation: It is a Lazy initialization of an array.

34. Guess the output:

```java
int arr1[] = {1, 2, 3};
int arr2[] = {1, 2, 3};
if (arr1 == arr2)
    System.out.println("Same");
else
    System.out.println("Not same");
```

    a. Same

    b. Not Same

    c. Compiler error

    d. None of the above

Ans: b. Not Same

Explanation: Only two reference variables are compared. Not the arrays.

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35. Which is not a true statement about an array?

    a. An array expands automatically when it is full.

    b. An array is allowed to contain duplicate values.

    c. An array understands the concept of ordered elements.

    d. An array uses a zero index to reference the first element.

Ans: a. An array expands automatically when it is full.

Explanation: An ArrayList expands automatically when it is full. An array does not, making Option A the answer. The other three statements are true of both an array and an ArrayList.

36. Index in the array ends with _____.

    a. Array length-1

    b. 0

    c. 1

    d. Infinite

Ans: a. Array length-1

Explanation: In an array, indexing starts at 0, so the last index is always one less than the total length of the array. For example, if an array has 5 elements, the last index is 4 (which is 5 - 1).

37. What is the default initial value of elements in an integer array in Java?

    a. false

    b. true

    c. null

    d. 0

Ans: d. 0

Explanation: In Java, when an integer array is created, all its elements are automatically initialized to the default value of 0. This means that if you create an integer array, each element will start off as 0.

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38. What is a disadvantage of the array data structure?

    a. access is sequential

    b. An array declared, cannot be expanded or made smaller

    c. insertion and deletion are easy

    d. Dynamic memory allocation

Ans: b. An array declared, cannot be expanded or made smaller

Explanation: The disadvantage of arrays is that their size is fixed once declared, so you can't change it later. This limits flexibility in managing data