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6) Post - Examination Exercise

A) Extended Theory

- 1) Differentiate between scanner class & buffered reader class.

| Scanner | Buffered Reader |
|--|---|
| 1) Scanner is not synchronous in nature & should be used only in single threaded case. | 1) Buffered Reader is synchronous in nature during multi threading environment, buffered reader should be used. |
| 2) Scanner has little buffer of 1 KB char buffer. | 2) Buffered Reader has large buffer of 8 KB byte buffer. |
| 3) Scanner is bit slower as it needs to parse data as well. | 3) Buffered Reader is faster than scanner as it only reads a character stream. |
| 4) Scanner has methods like nextInt(), nextShort() etc. | 4) Buffered reader has methods like haveInt(), parseShort() etc. |

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- 2) Differentiate between string buffer class and string class

String

- ① The length of the string object is fixed
- ② String object is immutable
- ③ It is slower during concatenation
- ④ Memory is consumed more

String Buffer

- ① The length of string buffer can be increased.
- ② String buffer is mutable
- ③ It is faster during concatenation .
- ④ Less memory consumed.

- 3) Explain 20 methods of vector class with syntax
 → vector implements a dynamic array but with two differences .
- i) vector is synchronized
 - ii) vector contains many legacy methods that are not part of collections framework

- 1) Syntax :- void add(int index , Object element)
 Explain Inserts the specified element at specified position in vector .

- 2) Legacy add(Object a) →
 Append the specified element at the end of the list . vector .

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3) int capacity () :-

This method returns the current capacity of the vector.

4) void clear () :-

Removes all the elements from the vector.

5) Object clone () :-

Returns a clone of the vector.

6) b�ean contains (Object elem)

Tests if the specified object is a component in the vector.

7) void copy into (Object [] , array)

Copies the components of this vector into the specified array.

8) Object element at (int index)

- Returns the component at specified index

9) Enumeration elements ()

Returns an enumeration of the components of this vector.

10) void ensureCapacity (int minCapacity)

Increases the capacity of vector.

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(1) `boolean equals (Object o)`

-compares the specified object with this vector for equality.

(2) `Object firstElement ()`

Returns the first element of vector.

(3) `int hashCode ()`

Returns the hash code value for this vector.

(4) `Object [] toArray ()`

Returns an array containing all the elements into the vector in correct order.

(5) `String toString ()`

Returns a string representation of the vector, containing the string representation of each element.

(6) `void trimToSize ()`

Trims the size capacity of the vector to be the vector's current size.

(7) `int size ()`

returns the number of components in this array vector.

(8) `void removeAllElements ()`

removes all elements in vector, set it's size to 0.

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- 19) protected void removeRange (int fromIndex, int toIndex)
removes the elements in the vector from the from index to the toIndex.
- 20) object set (int index, object element)
Replaces the element of specified index with specified element in vector.

Q4) Difference between vector and array

| Vector | array |
|---|--|
| 1) Vector is a sequential container to store elements and not index based. | 2) Array stores a fixed size sequential collection of elements of the same type & index based. |
| 2) Vector is dynamic in nature so increases size with insertion of elements | 2) An array is fixed size once initialized can't be resized. |
| 3) Vector occupies more memory | 3) Array is memory efficient data structure. |

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D. Conclusion :-

In this experiment we have written Java programs to implement command line arguments, scanner class, buffered reader class, vectors and constructor chaining.

Scanner class and BufferedReader are two important classes that help us to enter our input in the program. Vectors are one of the most important datatypes as they can't have a fixed capacity.

To take input from the user the Scanner class and BufferedReader class are essential. Vectors can store various type of data. String class is used to create and manipulate strings.