

**Question - 1**  
**Question 1**

SCORE: 5 points

Can you subclass the class String?

- ☐ Yes
- ☒ No, String is a final class
- ☐ No, String is an interface and is implemented
- ☐ None of the above

**Question - 2**  
**Question 2**

SCORE: 5 points

What is the complexity of the innermost loop?

```
for (int i = 0; i < this.rows; i++) {  
    for (int j = 0; j < other.columns; j++) {  
        double x = 0;  
        for (int k = 0; k < this.columns; k++)  
            x += this.values[i][k] * other.values[k][j];  
        result[i][j] = x;  
    }  
}
```

- ☐ N
- ☐  $N^2$
- ☒  $N^3$
- ☐  $3N$

**Question - 3**  
**Question 3**

SCORE: 5 points

Select the option which best describes the following data structure :

**Array**



is of fixed size and can be accessed randomly or by index



is of variable size and is accessed sequentially from the head



is growable and is accessed by key



none of the above

#### Question - 4 Question 4

SCORE: 5 points

Select the option which best describes the following data structure :

**List**



is of fixed size and can be accessed randomly or by index



is of variable size and is accessed sequentially from the head



is growable and is accessed by key



none of the above

#### Question - 5 Question 5

SCORE: 30 points

In java equals() method is used to compare equality of two Objects. the hashCode() method returns the hashcode value as an Integer. Hashcode value is mostly used in hashing based collections like HashMap, HashSet, HashTable....etc.

You will have to implement the Hashcode and Equals method for the given class.

**Sample Input:**

Jack 1 Jack 2 Jack 1 Joe 1

Student s1 : name = jack and id = 1. Identically for the remaining 3 student objects s2, s3 s4.

**Note:**

Only s1.equals(s3) should return true as their name and ids are identical.

All other invocations to equals() should return false.

**Please feel free to ask if you have doubts or queries.**