Classes and Object – Assignment

[Hint : How to use array in Java

To create an array in Java, you use three steps:

1. Declare a variable to hold the array.
2. Create a new array object and assign it to the array variable.
3. Store things in that array.

The step for declaring and creating array object

```
int[] temps = new int[99];
```

(Refer 2L in the sharepoint site for an example to read array from user) **]**

1. **Java implementation of STACK**

   Define a class STACK with data members and member functions required to maintain a deck of cards in LAST –IN-FIRST OUT fashion. Any card which is inserted at the end will come out first. Do a choice based iteration of the following functionalities.

   INSERT: Should be able to insert into the DECK.
   DISPLAYDECK: should display the status of deck in the order
   DELETE: Should delete the lastly inserted element.
   PEEP: At any time, PEEP should display the next element in the DECK

   Eg: DECK STATUS :1 4 25 6 78
   INSERT(20)-> inserted 20 at the front side
   DISPLAYDECK→ 20 1 4 25 6 78
   PEEP() ---→ element seen when peeped in is 20
   DELETE()→ deleted element is 20
   DISPLAYDECK-> 1 4 25 6 78

2. **Java implementation of QUEUE**

   Using classes implement a Queue data structure and help a Car service centre serve cars based on a QUEUE which follows a First Come first Serve order.. As the customers walk in, they register (put ticket) their vehicle no into the array. At any time admin at Service centre should be able to get the ticket no to be serviced NOW

which should strictly follow the FCFS strategy. Once the service centre completes the service of a vehicle, they should have option to delete the ticket from the QUEUE. Note that array will result in a QUEUE data structure which follows a FIRST IN FIRST OUT (FIFO) strategy.

Methods to be implemented:

- REGISTER (Incoming customer should register with car no)
- WHONEXT (At any time admin should know which car is waiting next in the QUEUE)
- DELETE (Once service is completed, admin should delete the car from the QUEUE)
- DISPLAYQUEUE (At point of time queue should be displayed in FCSF order

Eg: QUEUE STATUS : 123 567 111 999

WHONEXT → 123

INSERT(333)--→ inserted 333 at the end of queue

DISPLAYQUEUE -> 123 567 111 999 333

DELETE()-→. Deleted element is 123

DISPLAYQUEUE → 567 111 999 333