

CSA0914 -

Programming In Java

for Raspberry Pi

ASSIGNMENT- 3

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Name : A. Sarvani Banyata

Reg no : 192211795

Faculty : Dr. Hemavathi

①

### Array list operations

Input:

- 1) Add elements to the list
- 2) Remove an element by index
- 3) Search for an element
- 4) Iterate through the list
- 5) display all elements
- 6) Exit

Enter element to add: Apple

Output  
Element added

### Pseudocode

START

Create an empty array list named "list"

Create a scanner object for user input

Repeat

display menu options:

- 1) Add element-
- 2) Remove element by index
- 3) Search for an element
- 4) Display all elements
- 5) Exit

Read user choice

IF choice is 1 Then

prompt user to enter an element

Add the element to the arraylist

Display "element added"

ELSE IF choice is 2 then

prompt user to enter index to remove

if index is valid (within bounds of list)

Remove the element

Display "element removed"

ELSE

Display "invalid index"

END IF

ELSE IF choice is 3 then

prompt user to enter element to search

Search for the element in arraylist

if element is found then

display "element found at index"

ELSE

Display "element not found"

END IF

ELSE

Display "invalid choice"

END IF

END

(2)

Create a Program that demonstrates the use of a HashSet to store a collection of names, include the following features

Input:- HashSet operations:-

- 1) Add a name
- 2) Remove a name
- 3) Check if a Name is present
- 4) Display all names
- 5) Exit

Enter your choice: 1

Enter name to add: Alice

Output:- Name added successfully

Pseudocode:-

START

Create an empty HashSet called "names"

Create a Scanner object for user input

Repeat

    display menu options:

- 1) Add a name

- 2) Remove a name
- 3) check if a name is present
- 4) display all names
- 5) Exit

Read user choice

If choice is 1 then

prompt user to enter a name to add  
If the name is not ready in hashset then  
Add the name to the hashset  
display "Name added"

ELSE

Display "Name already exist"

END IF

ELSE

If Choice is 2 then

prompt user to enter a name to remove  
if the name exists in hashset then  
remove name from hash set

Display "Name removed"

ELSE Display "Name not found"

END  
END

③ Write a Java program that demonstrates  
use of a priority queue to store employee  
names based on their priorities.

Input:-

- 1) Add employee
- 2) Remove employee
- 3) display employee queue
- 4) Exit

Enter your choice: 1

Enter employee name to add: Alice

Output:-

Employee added successfully

Pseudocode:-

Start

Initialize priority queue

loop until user chooses to exit

    display "1. Add employee"

    display "2. Remove employee"

    display "3. display employee queue"

    display "4. Exit"

Prompt user for choice

Read userchoice  
if userchoice is 1 then  
prompt user to enter employee name  
Read employee name  
Add employee name to employee queue  
display "employee added successfully"  
else  
display "queue is empty"  
IF employee queue is not empty  
then  
Display "employee queue:  
ELSE  
Display "Invalid"  
END

④

Create a Hashmap that stores Student IDs and their names.

Inputs:-

D) Add Student

a) Search for a student by ID  
3) Remove a student by ID

5) Exit

4) Display all students

Enter your choice: 1

Enter student ID: 101

Enter student name: Alice

Output: Student added successfully

Pseudocode:-

START

Initalize Hashmap

loop until user chooses to exit:  
    1. Add Student  
    2. Search Student  
    Display

display "3. Remove student"

display "4. display all students"

display "5. Exit".

Prompt user for choice

Read userchoice

If userchoice is 1 then

Prompt user to enter student ID

Read id to Add

Prompt user to enter student name

Read name to add

Add id to Add and name to add

to student map

Display "student added successfully!"

ELSE if userchoice is 2 then

Prompt user to enter student ID to search

Read id to search

If Student hashmap contains id to search  
then

display "student name:" + student-name  
get (id to search)

ELSE

display "student ID not found"

ELSE if Userchoice is 2 then

prompt user to enter Student ID to search  
read id to search

ELSE

display "student ID not found"

close any resources if necessary

END