**LAB # 02**

**ArrayList and Vector in JAVA**

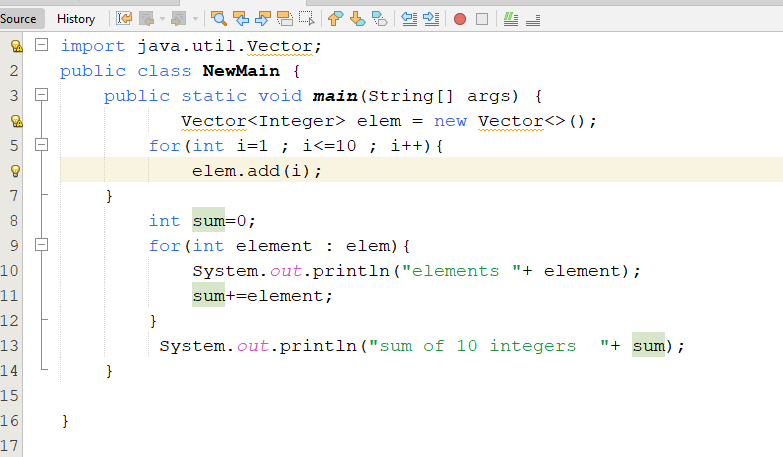
**OBJECTIVE:**

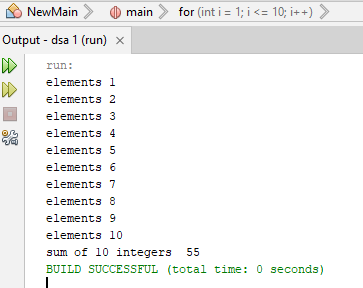
To implement ArrayList and Vector.

**Lab Tasks**

1. Write a program that initializes Vector with 10 integers in it. Display all the integers

and sum of these integers.

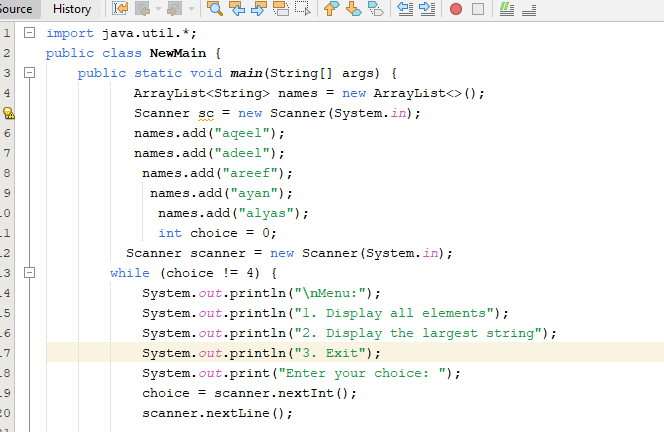


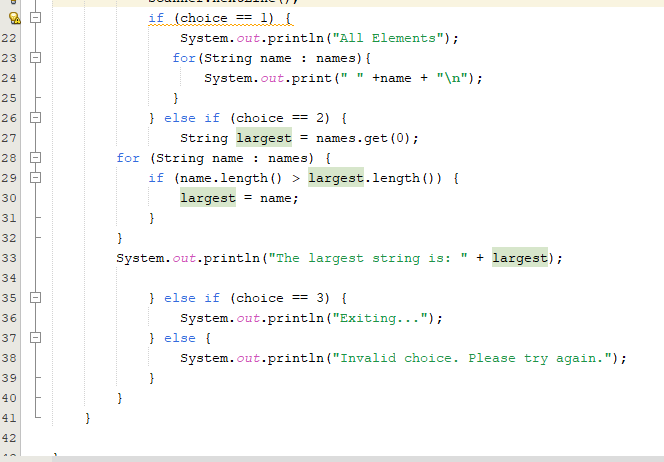


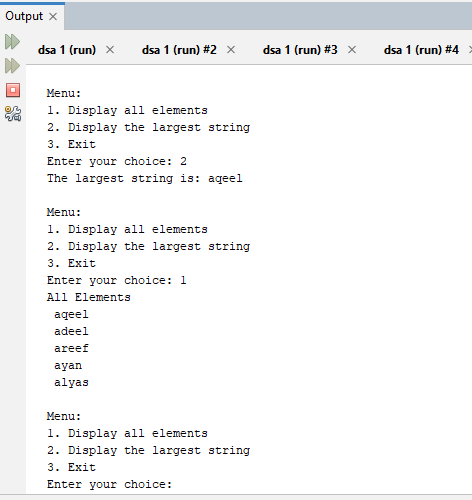
2. Create a ArrayList of string. Write a menu driven program which:

a. Displays all the elements

b. Displays the largest String





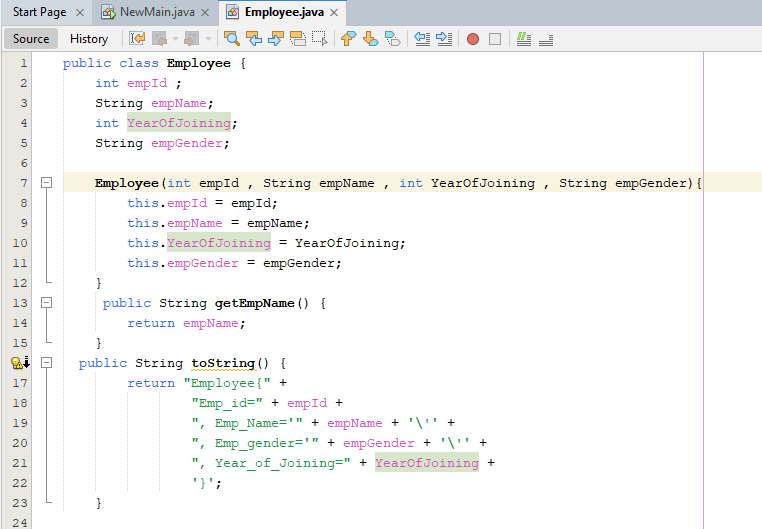


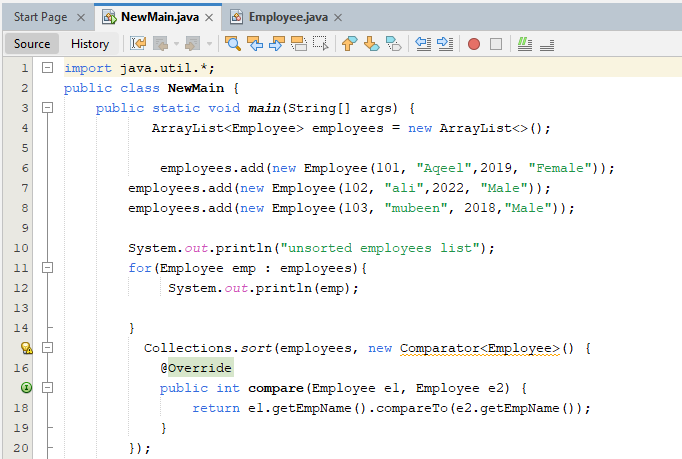
3. Create a Arraylist storing Employee details including Emp\_id, Emp\_Name,

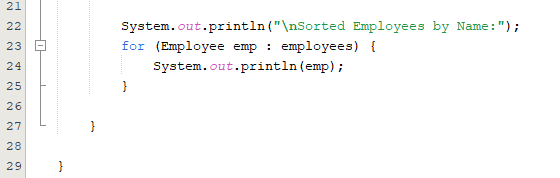
Emp\_gender, Year\_of\_Joining (you can also add more attributes including these).

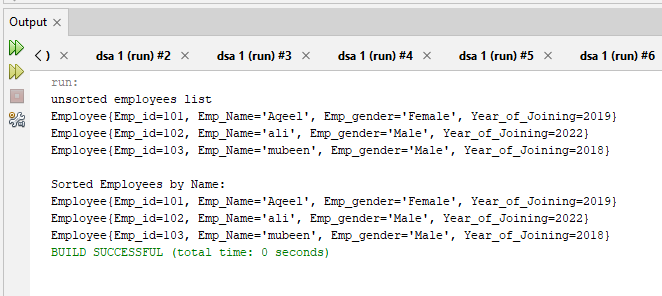
Then sort the employees according to their joining year using Comparator and

Comparable interfaces.







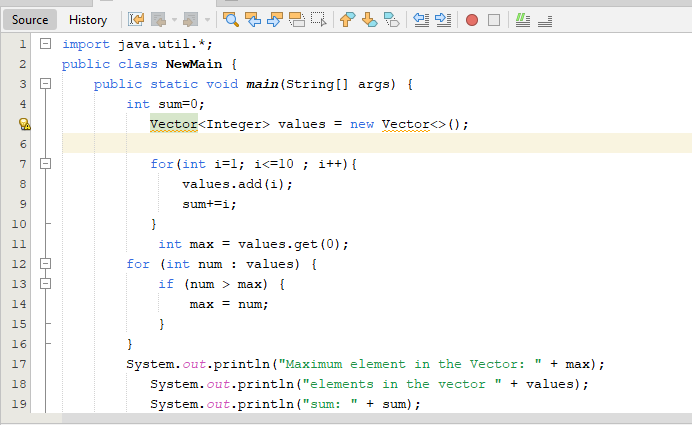


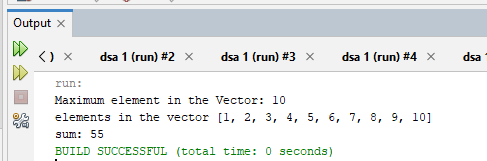
4. Write a program that initializes Vector with 10 integers in it.

 Display all the integers

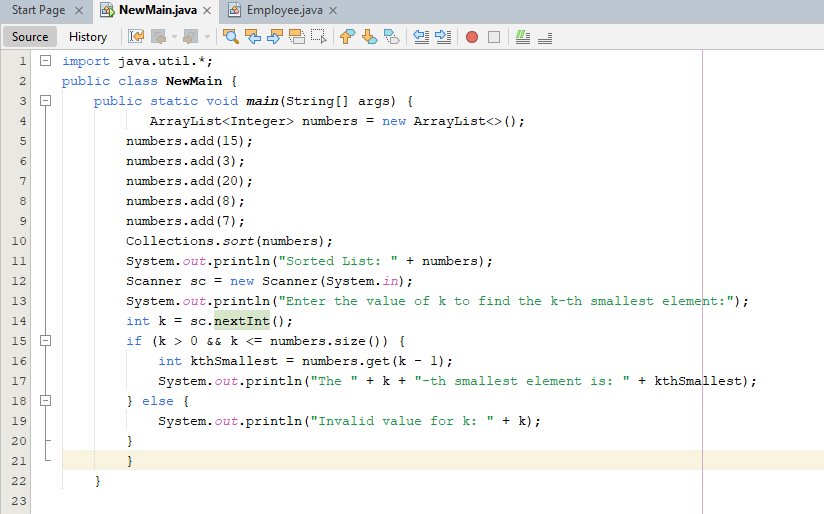
 Sum of these integers.

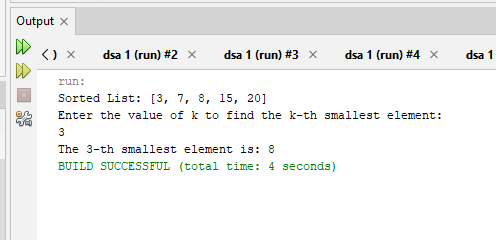
 Find Maximum Element in Vector.



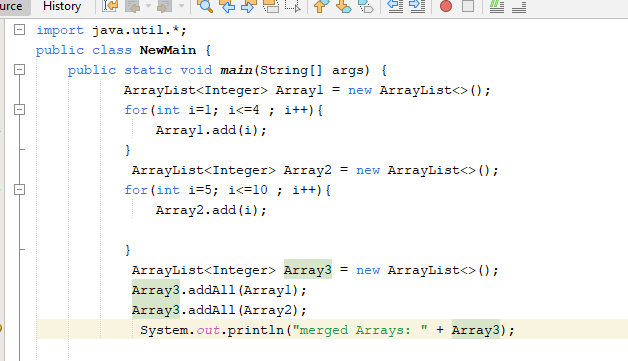


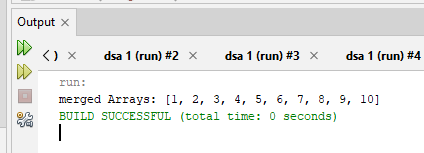
5. Find the k-th smallest element in a sorted ArrayList.





6. Write a program to merge two ArrayLists into one.





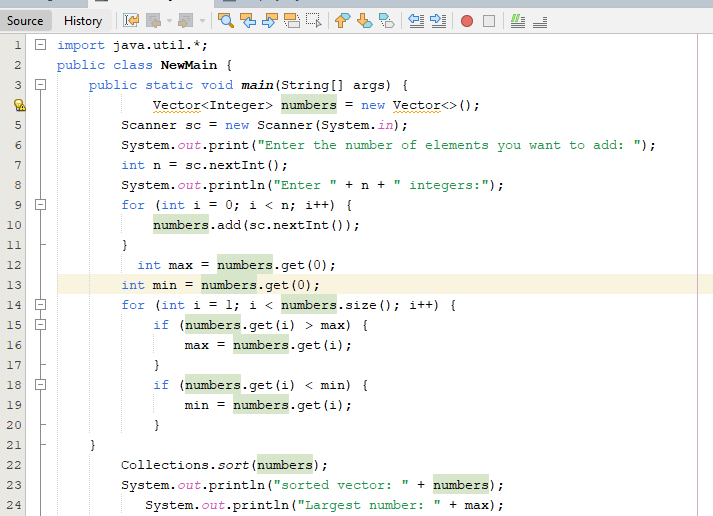
**Home Tasks**

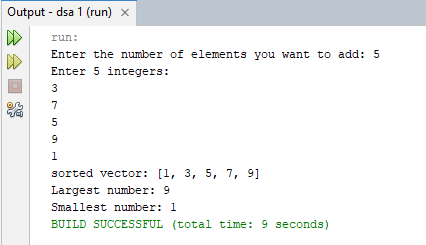
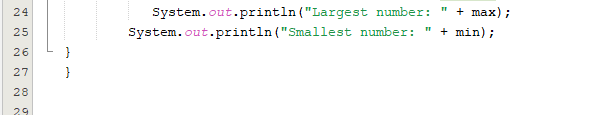
1. Create a Vector storing integer objects as an input.

a. Sort the vector

b. Display largest number

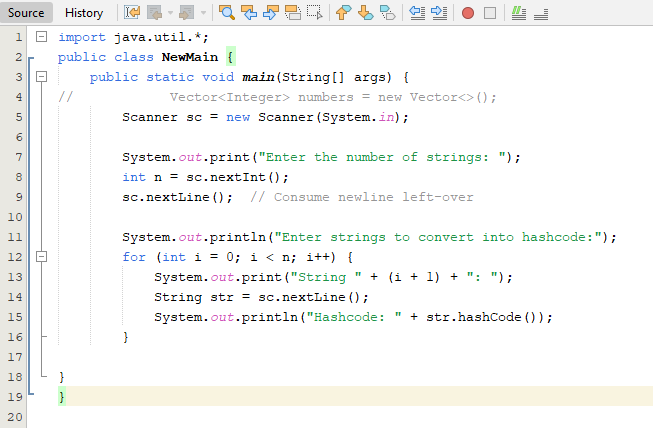
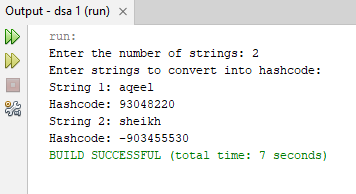
c. Display smallest number





2. Write a java program which takes user input and gives hashcode value of those

inputs using hashCode () method.

3. Scenario based

Create a java project, suppose you work for a company that needs to manage a list of employees. Each employee has a unique combination of a name and an ID. Your goal is to ensure that you can track employees effectively and avoid duplicate entries in your system.

Requirements

a. Employee Class: You need to create an Employee class that includes:

. name: The employee's name (String).

. id: The employee's unique identifier (int).

. Override the hashCode() and equals() methods to ensure that two employees are

considered equal if they have the same name and id.

b. Employee Management: You will use a HashSet to store employee records. This

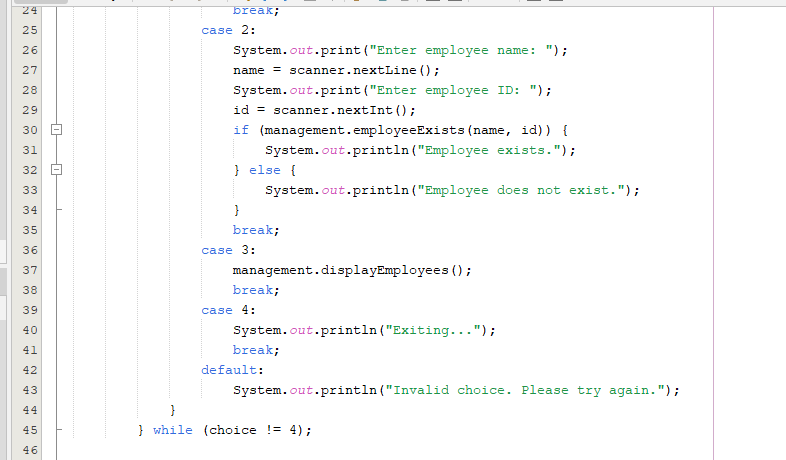
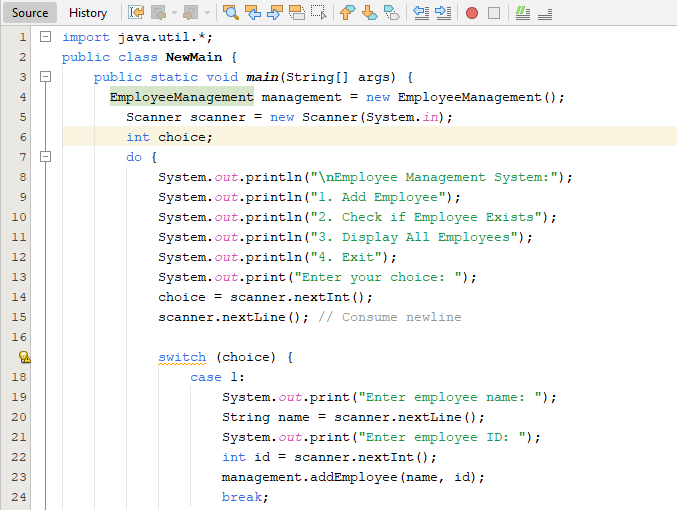
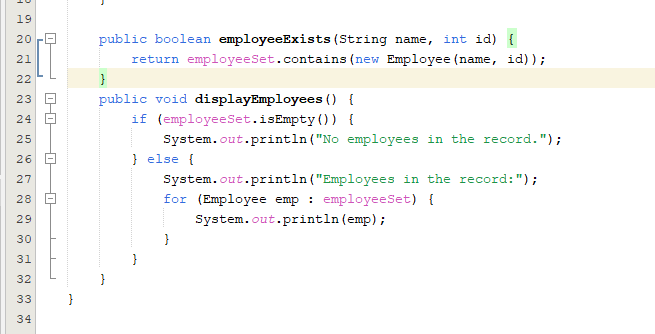
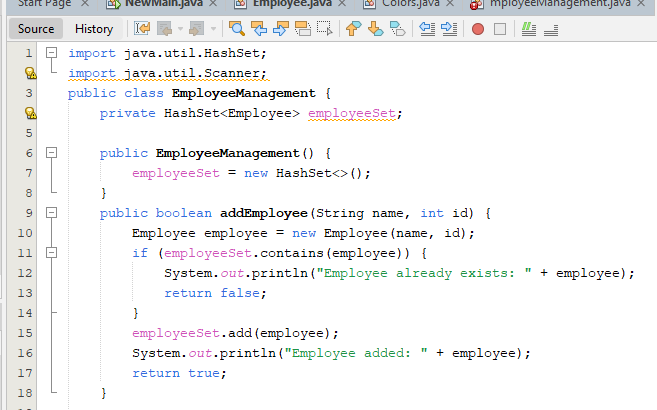
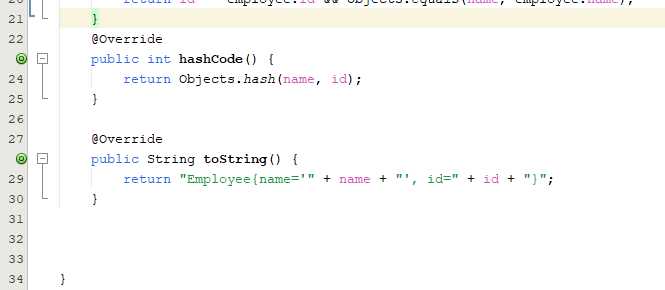
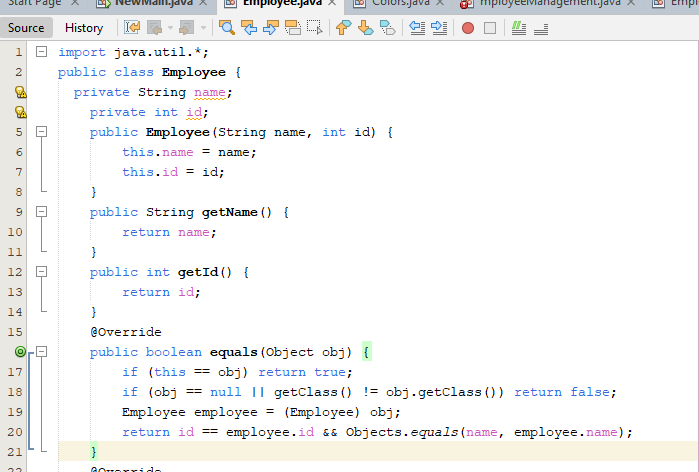
will help you avoid duplicate entries.

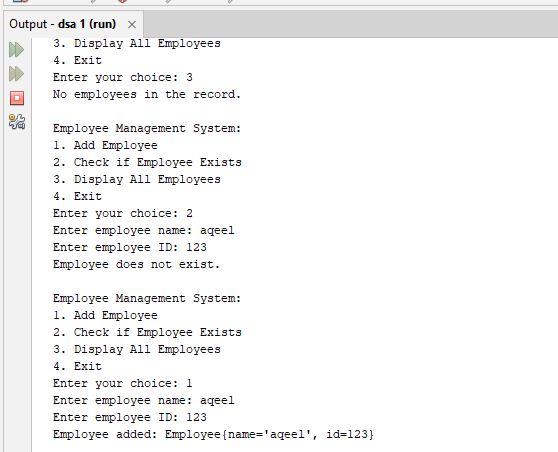
c. Operations: Implement operations to: w

. Add new employees to the record.

. Check if an employee already exists in the records.

. Display all employees.





4.Create a Color class that has red, green, and blue values. Two colors are considered equal if their RGB values are the same .

