Fall Semester 2020-21

CSE1007 – Java Programming Lab

Practice Problems on Collections

1. Write a program to demonstrate the knowledge of students in working with Java collection framework.

Eg., Assume only a maximum of 3 courses can be registered by a student for week end semester classes. Create a hashmap ‘h1’ with ‘n’ key-value pairs where keys are the names of students and values are the courses registered by them. Create another hashmap ‘h2’ with ‘m’key-value pairs where keys are the names of courses offered for B.Tech-IT and values are the names of faculty handling the courses. Write appropriate code to

* Add or remove a student from h1
* Iterate over the maps and display the key-value pairs stored in them
* Given a student name, fetch the names of all those who teach him/her.

Eg:, if the elements of h1 are

|  |  |
| --- | --- |
| Stud name | Courses registered |
| A | Python, maths, c |
| B | c, c++ |
| C | C++, physics,chemistry |

And if the elements of h2 are

|  |  |
| --- | --- |
| Course name | Faculty |
| Python | 111 |
| Maths | 222 |
| C | 333 |
| C++ | 444 |
| Physics | 555 |
| Chemistry | 666 |
| Digital electronics | 777 |

For the student “B”, faculty should be displayed as 333 and 444.

1. Create a class tourist which has the data members name, state, famous\_spot . Create a list of all the states in the south. Add the tourist places to the list based on state. Display the list in sorted order. Search a tourist spot from the list and display the details. Raise an exception if the details are not present.
2. The following list gives the amount of rainfall (in cms) recorded at a particular place for 12 months.

10.2, 11.9, 8.0, 11.2, 10.8, 6.9, 8.2, 11.5, 10.4, 8.7, 7.8, 7.5.

Store these values in an queue. Find the average rainfall and display the count of the number of months in which the rainfall is more than the average.

1. The librarian would like to maintain a list which has the information about the book name, author, price, no\_of\_copies in the library. Max 5 books can be placed in a rack. Create a hashmap of the book object with the rack no. Write a method search to read a book name and return its rack no. Write a method sort to display the book name in a particular rack.

1. An Industry collects the product sample measurements (product id, diameter, length, weight) for quality test and sends it to the quality assurance (QA) department in a serialized manner. The QA departments deserialize the samples and checks if the length=10cm, diameter=3cm, weight=100gms. The product id of defective samples are stored in a set. The product id of correct samples are stored in another sort. Sort the correct samples in list.