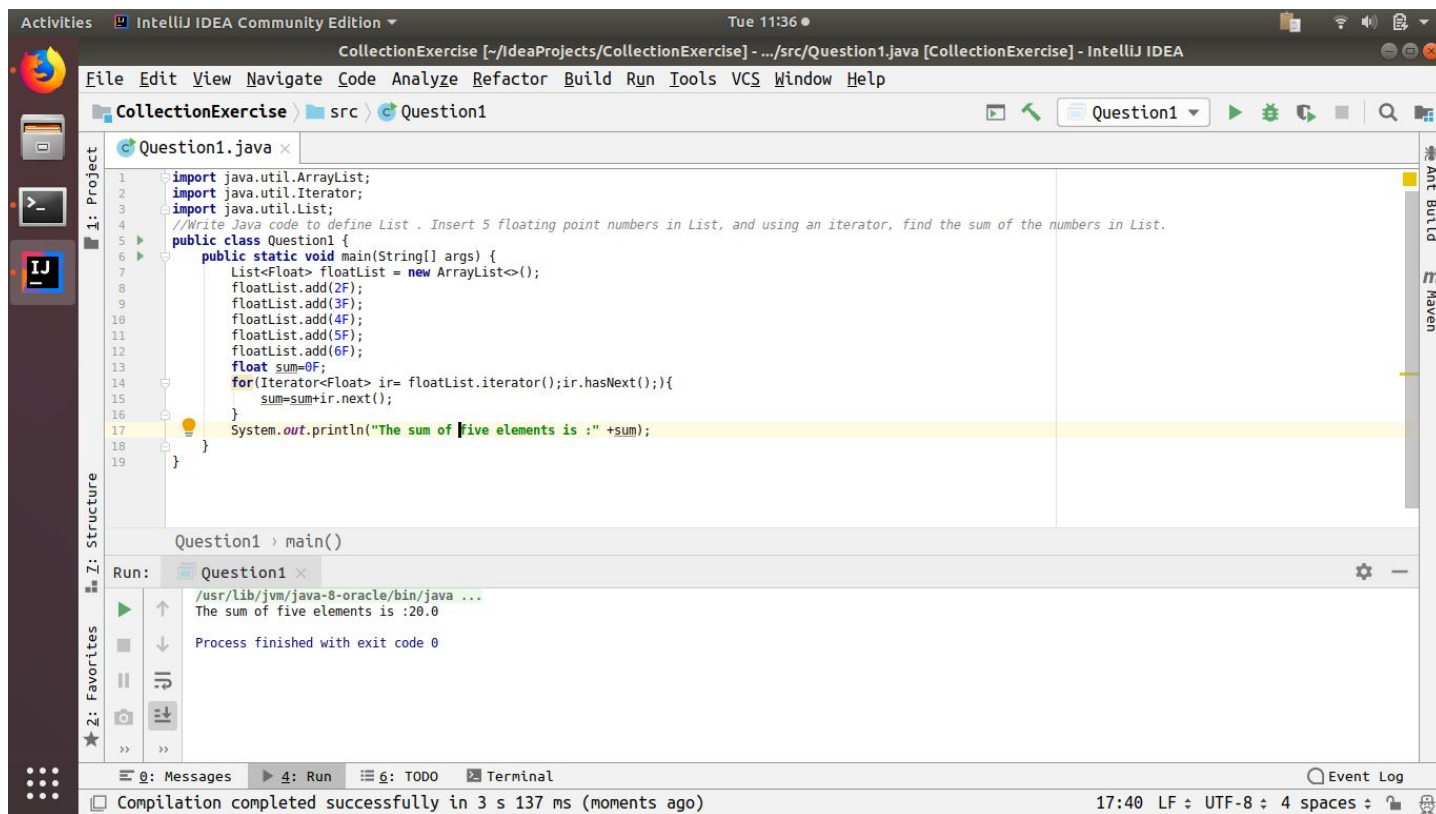


## Collection and date - Assignment

1. Write Java code to define List . Insert 5 floating point numbers in List, and using an iterator, find the sum of the numbers in List.



The screenshot shows the IntelliJ IDEA Community Edition interface. The main editor displays the file `Question1.java` with the following code:

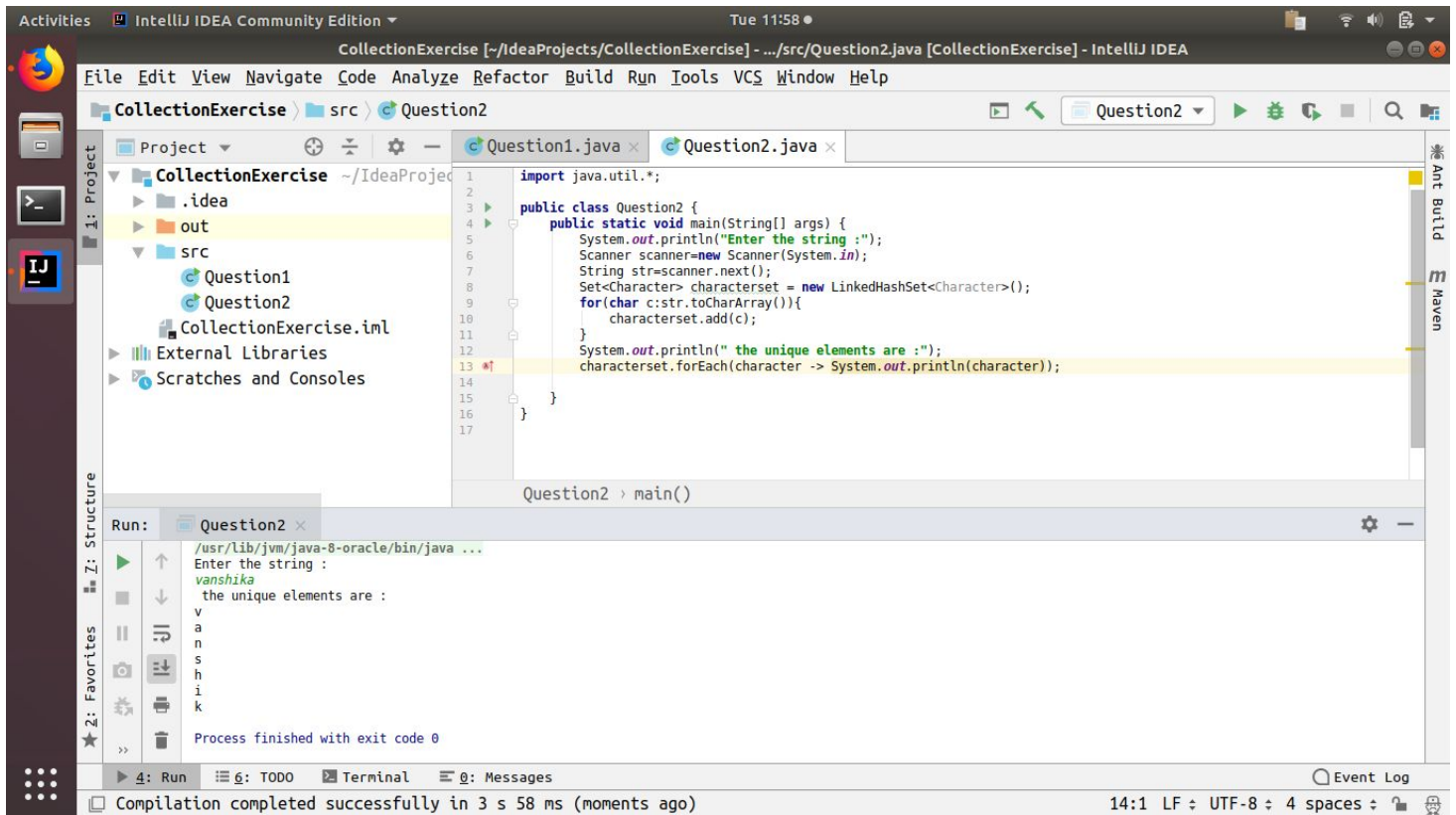
```
1 import java.util.ArrayList;
2 import java.util.Iterator;
3 import java.util.List;
4 //Write Java code to define List . Insert 5 floating point numbers in List, and using an iterator, find the sum of the numbers in List.
5
6 public class Question1 {
7     public static void main(String[] args) {
8         List<Float> floatList = new ArrayList<>();
9         floatList.add(2F);
10        floatList.add(3F);
11        floatList.add(4F);
12        floatList.add(5F);
13        floatList.add(6F);
14        float sum=0F;
15        for(Iterator<Float> ir= floatList.iterator();ir.hasNext();){
16            sum=sum+ir.next();
17        }
18        System.out.println("The sum of five elements is :"+sum);
19    }
20 }
```

The code is executed, and the Run window shows the output:

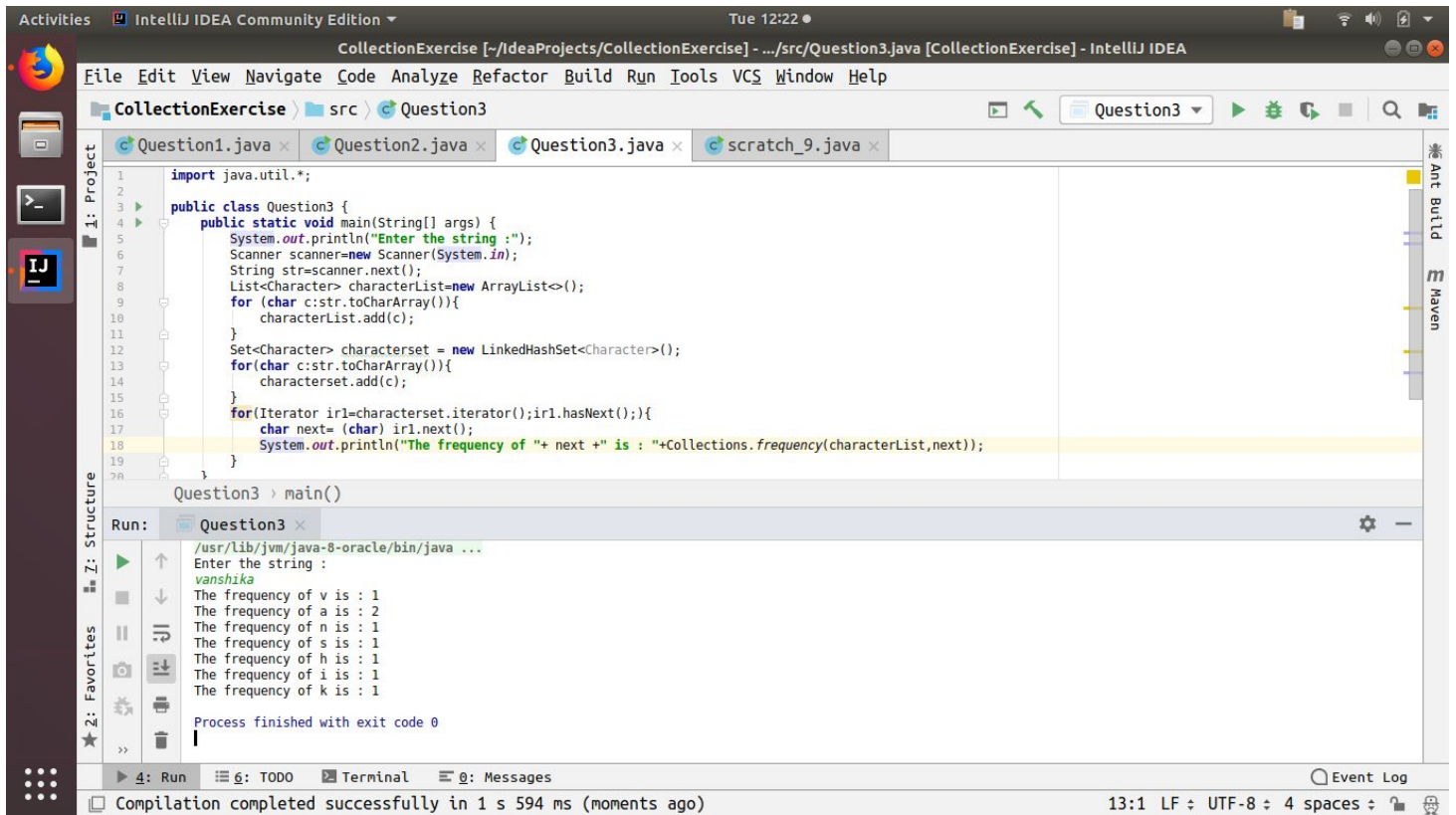
```
Run: Question1
/usr/lib/jvm/java-8-oracle/bin/java ...
The sum of five elements is :20.0
Process finished with exit code 0
```

The status bar at the bottom indicates "Compilation completed successfully in 3 s 137 ms (moments ago)" and the current time is 17:40.

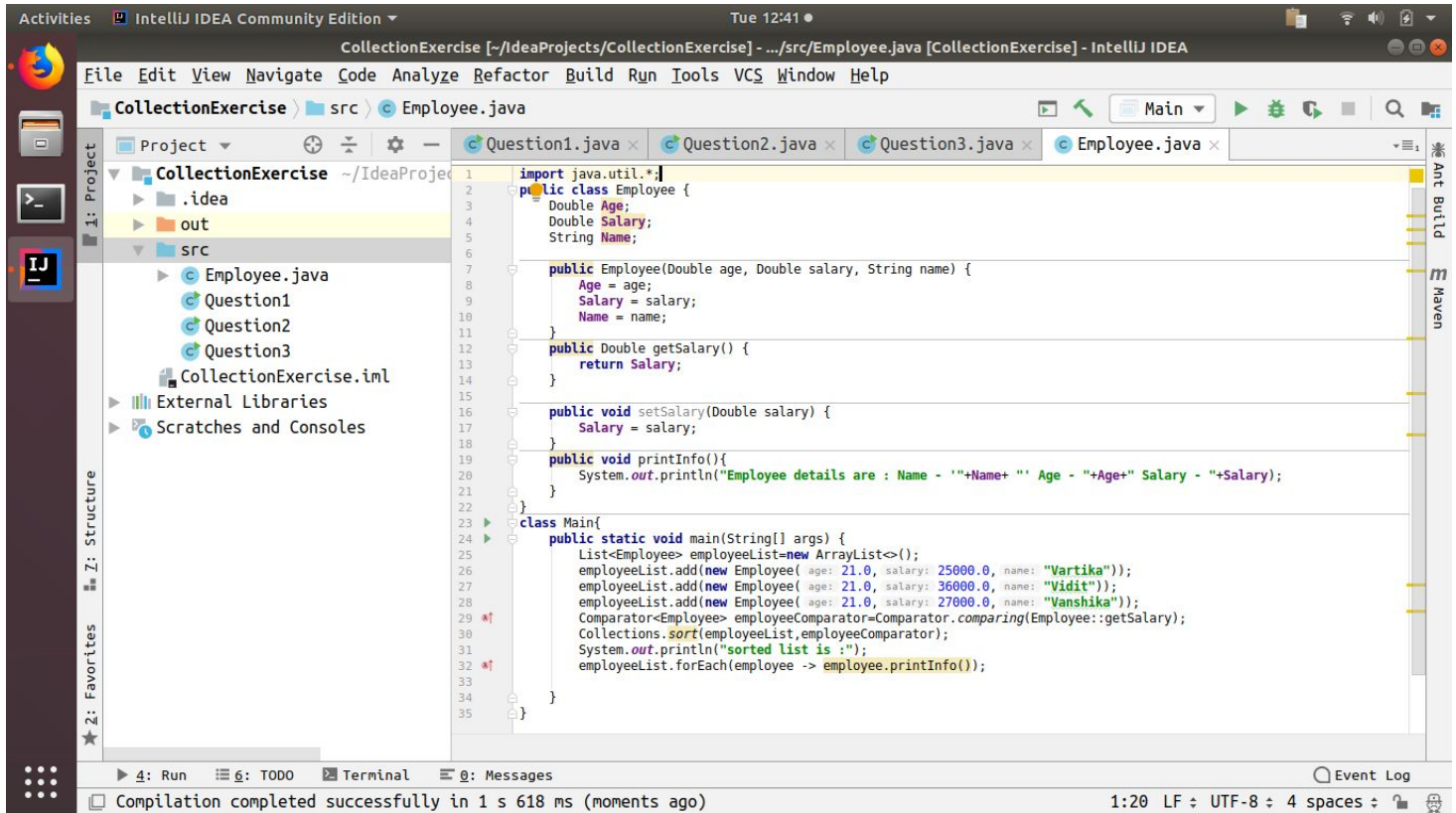
2. Write a method that takes a string and returns the number of unique characters in the string.

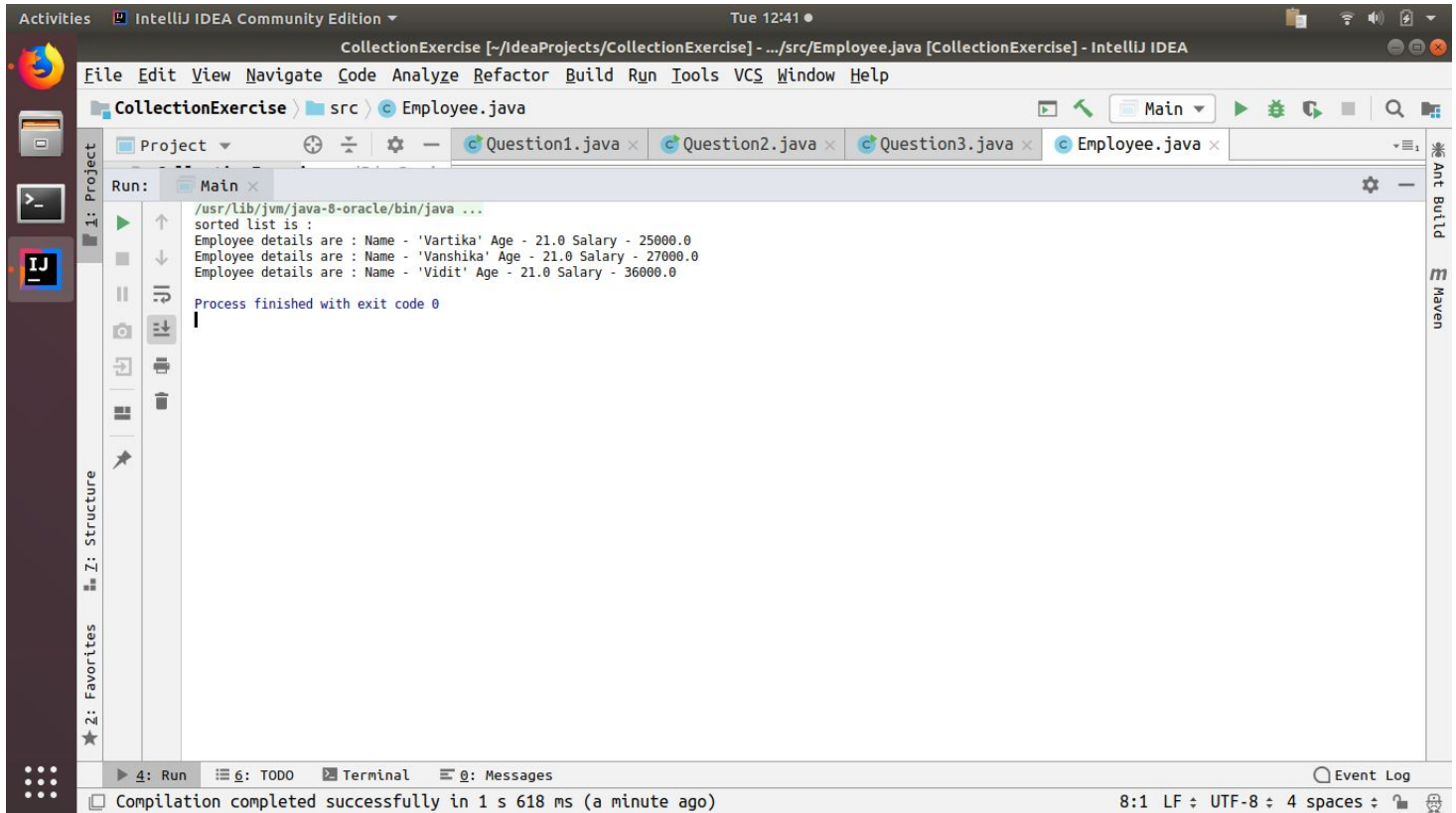


3. Write a method that takes a string and print the number of occurrence of each character characters in the string.



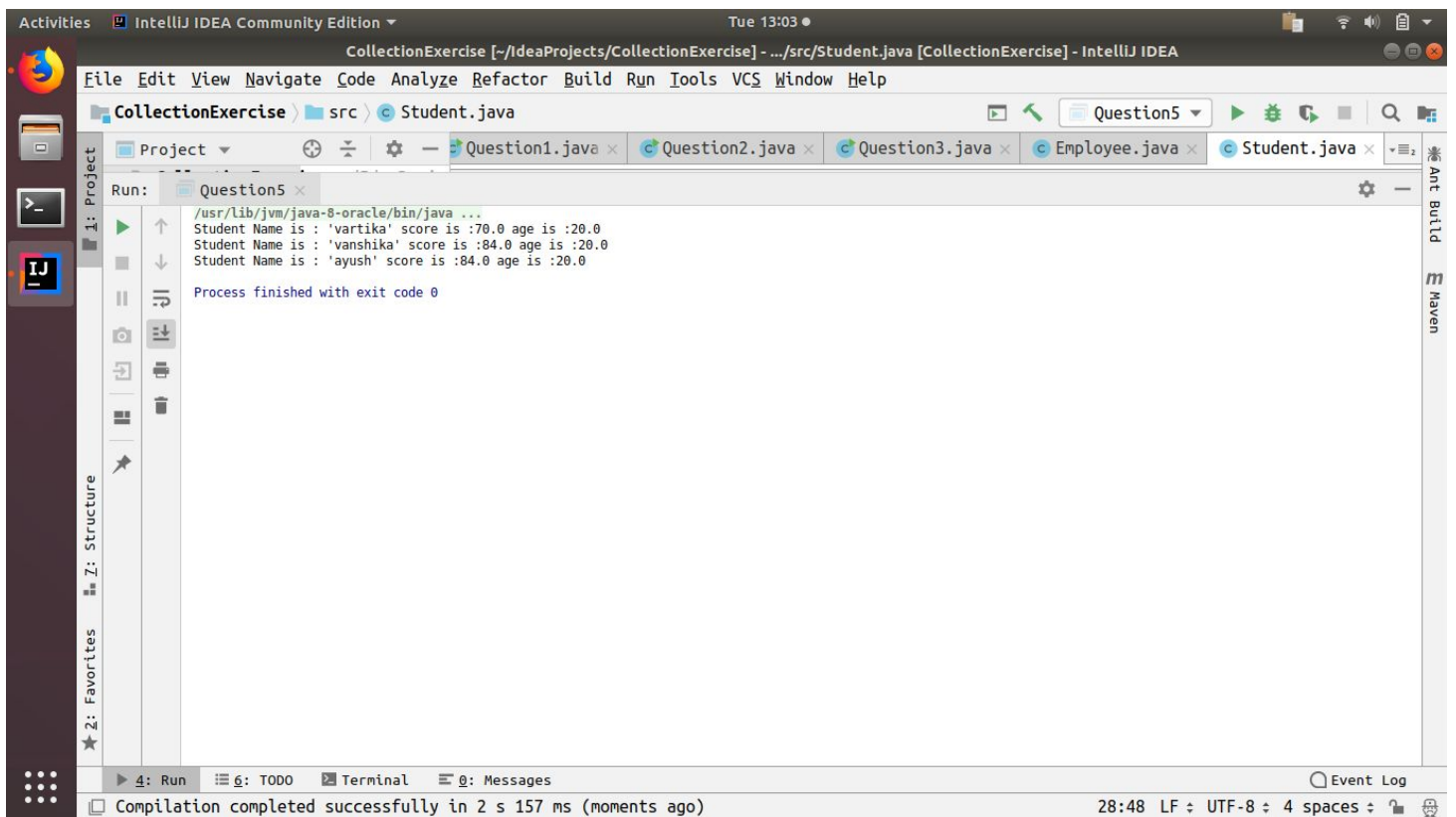
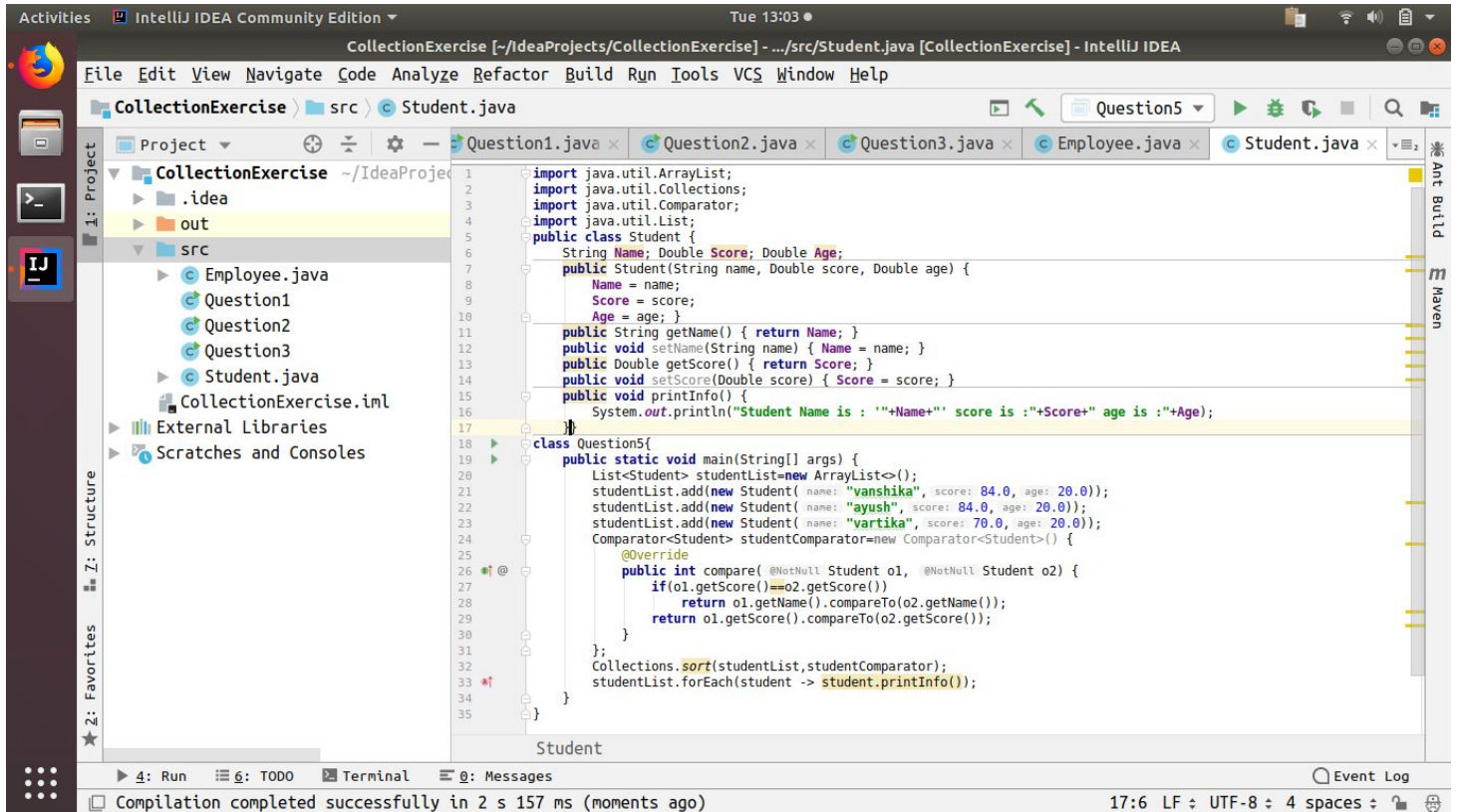
4. Write a program to sort Employee objects based on highest salary using Comparator. Employee class{  
Double Age; Double Salary; String Name



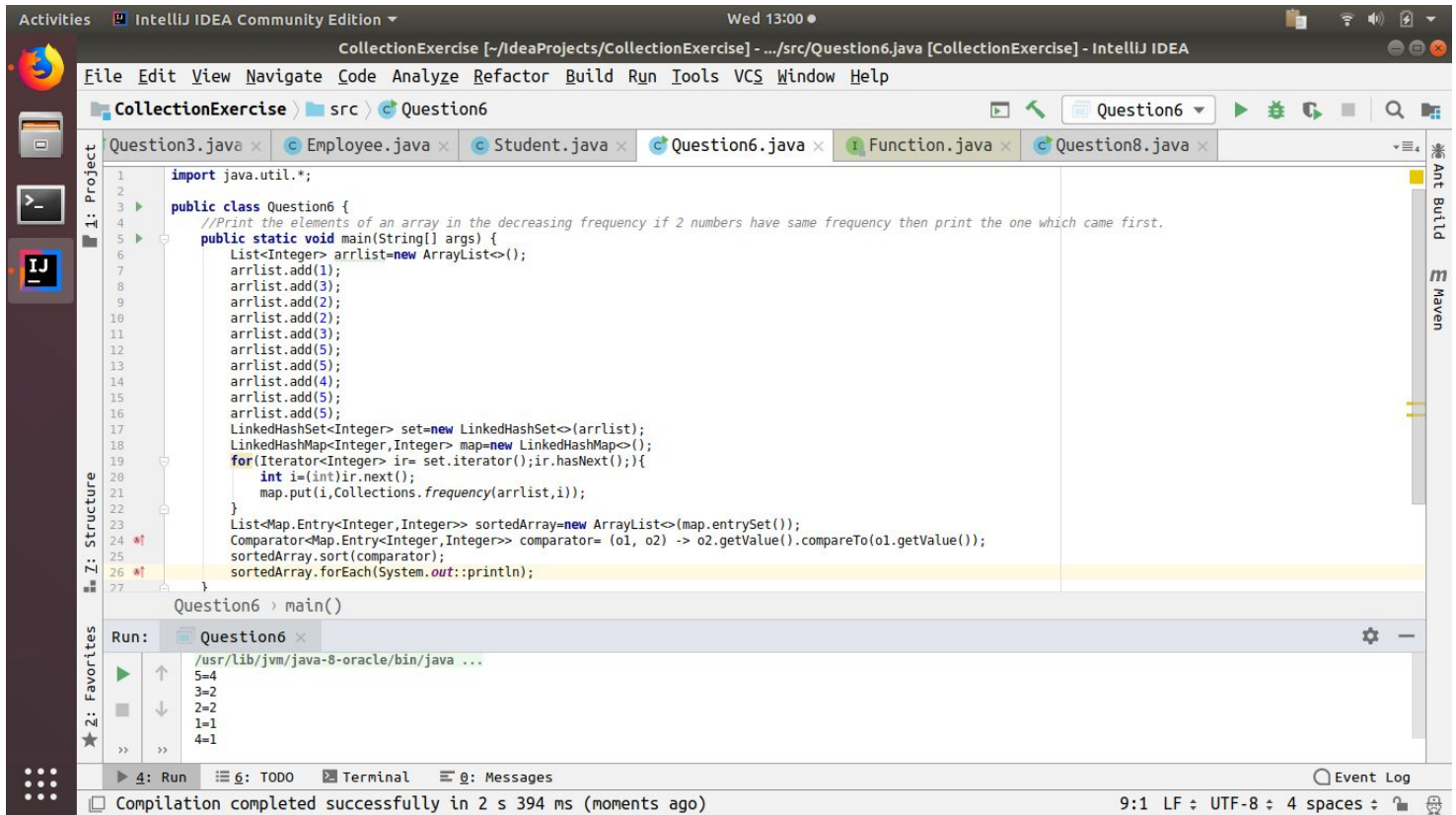


5. Write a program to sort the Student objects based on Score , if the score are same then sort on First Name . Class Student{ String Name; Double Score; Double Age





6. Print the elements of an array in the decreasing frequency if 2 numbers have same frequency then print the one which came first.



```
import java.util.*;

public class Question6 {
    //Print the elements of an array in the decreasing frequency if 2 numbers have same frequency then print the one which came first.
    public static void main(String[] args) {
        List<Integer> arrlist=new ArrayList<>();
        arrlist.add(1);
        arrlist.add(3);
        arrlist.add(2);
        arrlist.add(2);
        arrlist.add(3);
        arrlist.add(5);
        arrlist.add(5);
        arrlist.add(4);
        arrlist.add(5);
        arrlist.add(5);
        HashSet<Integer> set=new HashSet<>(arrlist);
        LinkedHashMap<Integer,Integer> map=new LinkedHashMap<>();
        for(Iterator<Integer> ir= set.iterator();ir.hasNext();){
            int i=(int)ir.next();
            map.put(i,Collections.frequency(arrlist,i));
        }
        List<Map.Entry<Integer,Integer>> sortedArray=new ArrayList<>(map.entrySet());
        Comparator<Map.Entry<Integer,Integer>> comparator= (o1, o2) -> o2.getValue().compareTo(o1.getValue());
        sortedArray.sort(comparator);
        sortedArray.forEach(System.out::println);
    }
}
```

Run: Question6

```
/usr/lib/jvm/java-8-oracle/bin/java ...
5=4
3=2
2=2
1=1
4=1
```

Compilation completed successfully in 2 s 394 ms (moments ago)

7. Design a Data Structure SpecialStack that supports all the stack operations like push(), pop(), isEmpty(), isFull() and an additional operation getMin() which should return minimum element from the SpecialStack. (Expected complexity O(1))

Activities IntelliJ IDEA Community Edition Wed 13:50 CollectionExercise [~/IdeaProjects/CollectionExercise] - .../src/SpecialStack.java [CollectionExercise] - IntelliJ IDEA

File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help

CollectionExercise src SpecialStack.java ImplementSpecialStack

tion3.java Employee.java Student.java Question6.java SpecialStack.java Stack.java Function.java

```
4 public class SpecialStack {
5     Stack<Integer> specialStack=new Stack<>();
6     List<Integer> minlist=new ArrayList<>();
7     int MaxSize,count=0;
8     public SpecialStack(int maxSize) {
9         MaxSize = maxSize;
10    }
11
12    public void push(int element){
13        if(specialStack.isEmpty()){
14            minlist.add(element);
15        } else if (minlist.get(minlist.size()-1)>element){
16            minlist.add(element);
17        }
18        specialStack.push(element);
19        count++;
20    }
21
22    public void pop(){
23        if(specialStack.peek().equals(minlist.get(minlist.size() - 1)))
24            minlist.remove( minlist.size()-1);
25        specialStack.pop();
26        count--;
27    }
28
29    public boolean isEmpty(){
30        return specialStack.isEmpty();
31    }
32
33    public boolean isFull(){
34        if(MaxSize==count)
35            return true;
36        return false;
37    }
38
39    public int getMin(){
40        return (minlist.get(minlist.size()-1));
41    }
42 }
43
44 class ImplementSpecialStack{
```

4: Run 6: TODO Terminal 8: Messages Event Log

Compilation completed successfully in 1 s 526 ms (moments ago) 38:2 LF UTF-8 4 spaces

Activities IntelliJ IDEA Community Edition Wed 13:50 CollectionExercise [~/IdeaProjects/CollectionExercise] - .../src/SpecialStack.java [CollectionExercise] - IntelliJ IDEA

File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help

CollectionExercise src SpecialStack.java ImplementSpecialStack

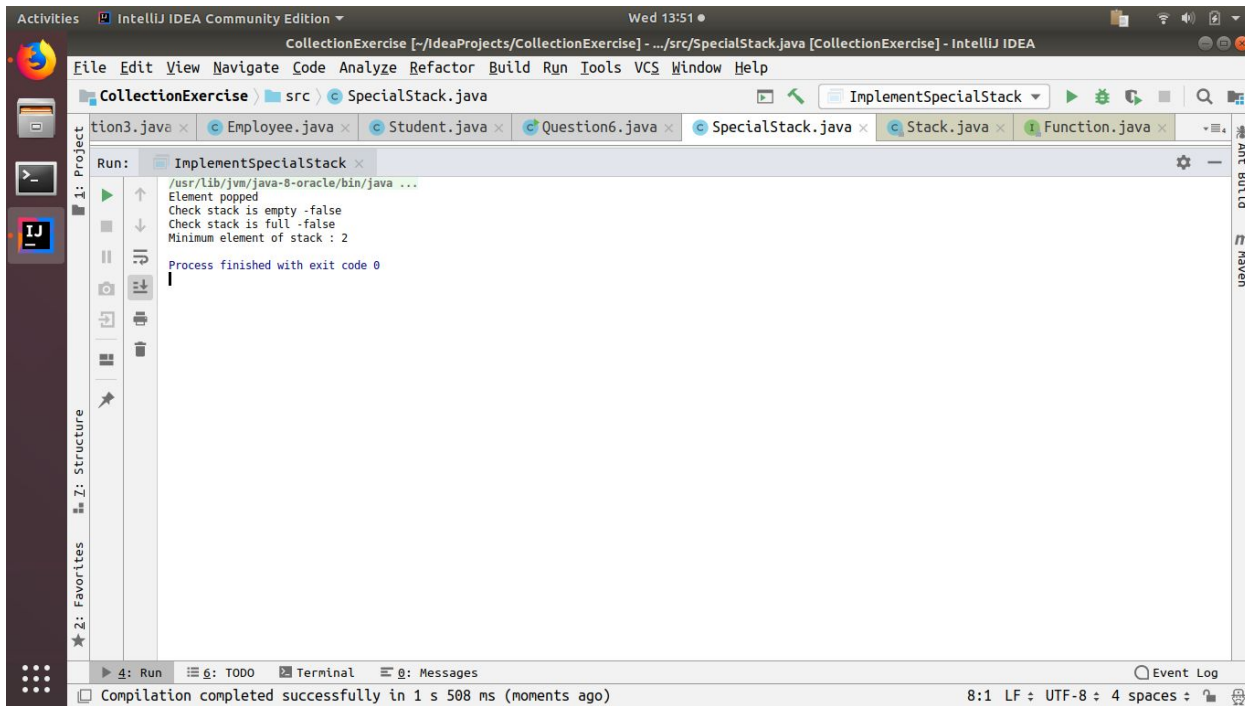
tion3.java Employee.java Student.java Question6.java SpecialStack.java Stack.java Function.java

```
29
30
31 public boolean isFull(){
32     if(MaxSize==count)
33         return true;
34     return false;
35 }
36
37 public int getMin(){
38     return (minlist.get(minlist.size()-1));
39 }
40
41 class ImplementSpecialStack{
42     public static void main(String[] args) {
43         SpecialStack specialStack=new SpecialStack( maxSize: 10);
44         specialStack.push( element: 5);
45         specialStack.push( element: 6);
46         specialStack.push( element: 7);
47         specialStack.push( element: 4);
48         specialStack.push( element: 8);
49         specialStack.push( element: 2);
50         specialStack.push( element: 3);
51         specialStack.push( element: 5);
52         specialStack.push( element: 1);
53         System.out.println("Minimum element of stack : "+specialStack.getMin());
54         System.out.println("Element popped ");
55         specialStack.pop();
56         System.out.println("Check stack is empty -"+specialStack.isEmpty());
57         System.out.println("Check stack is full -"+specialStack.isFull());
58         System.out.println("Minimum element of stack : "+specialStack.getMin());
59     }
60 }
```

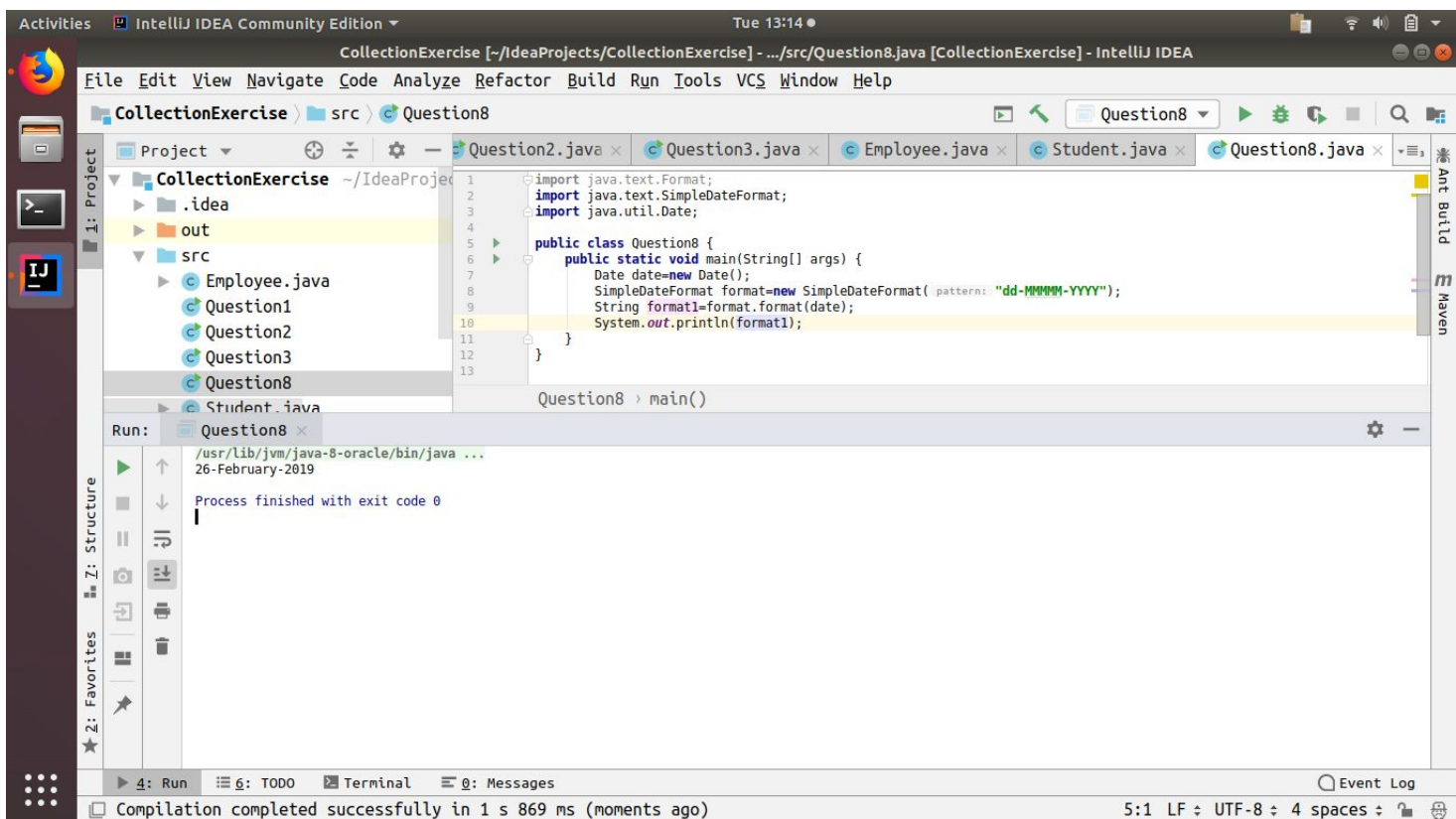
4: Run 6: TODO Terminal 8: Messages Event Log

Compilation completed successfully in 1 s 526 ms (moments ago) 38:2 LF UTF-8 4 spaces

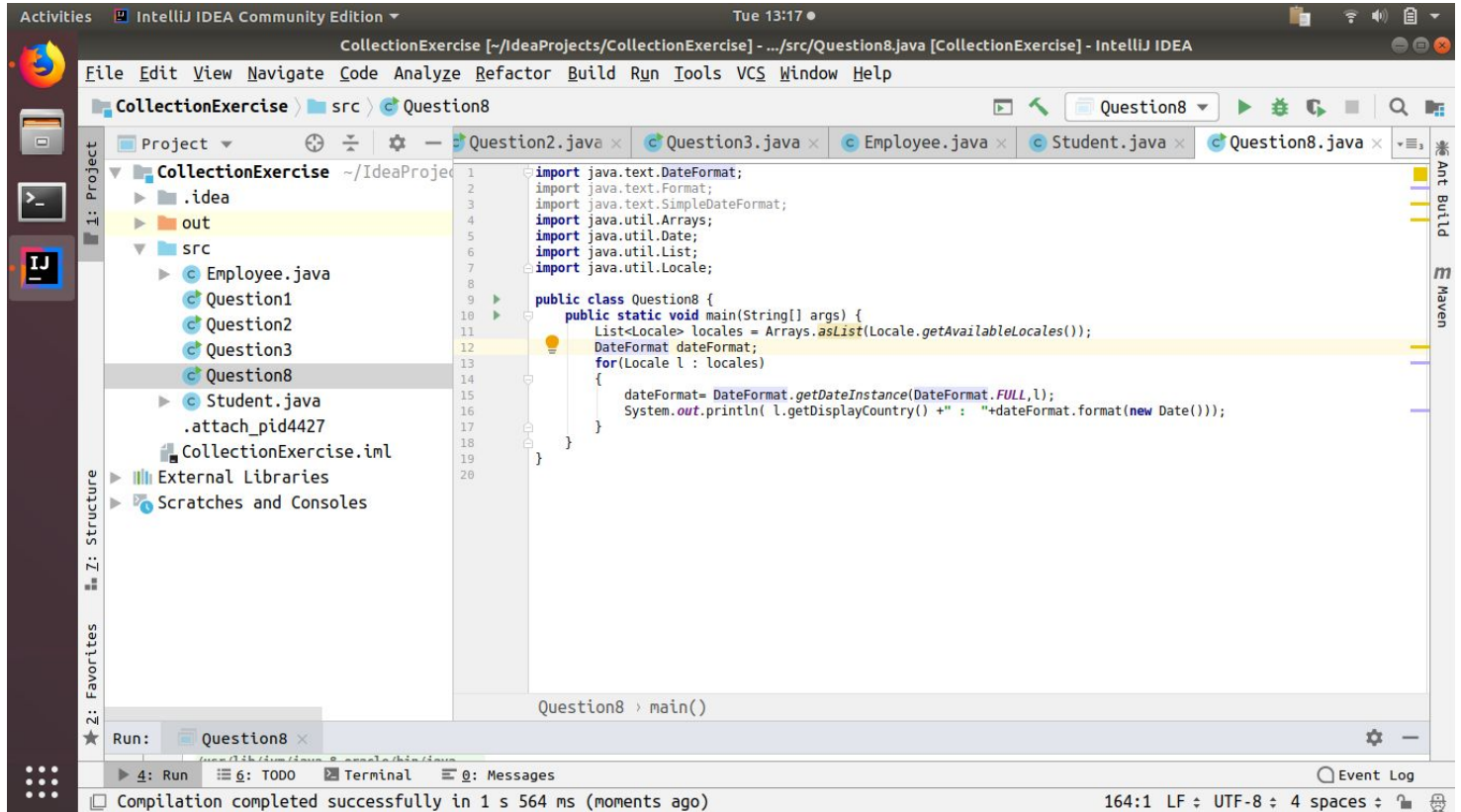




8. Write a program to format date as example "21-March-2016"



9. Write a program to display times in different country format.

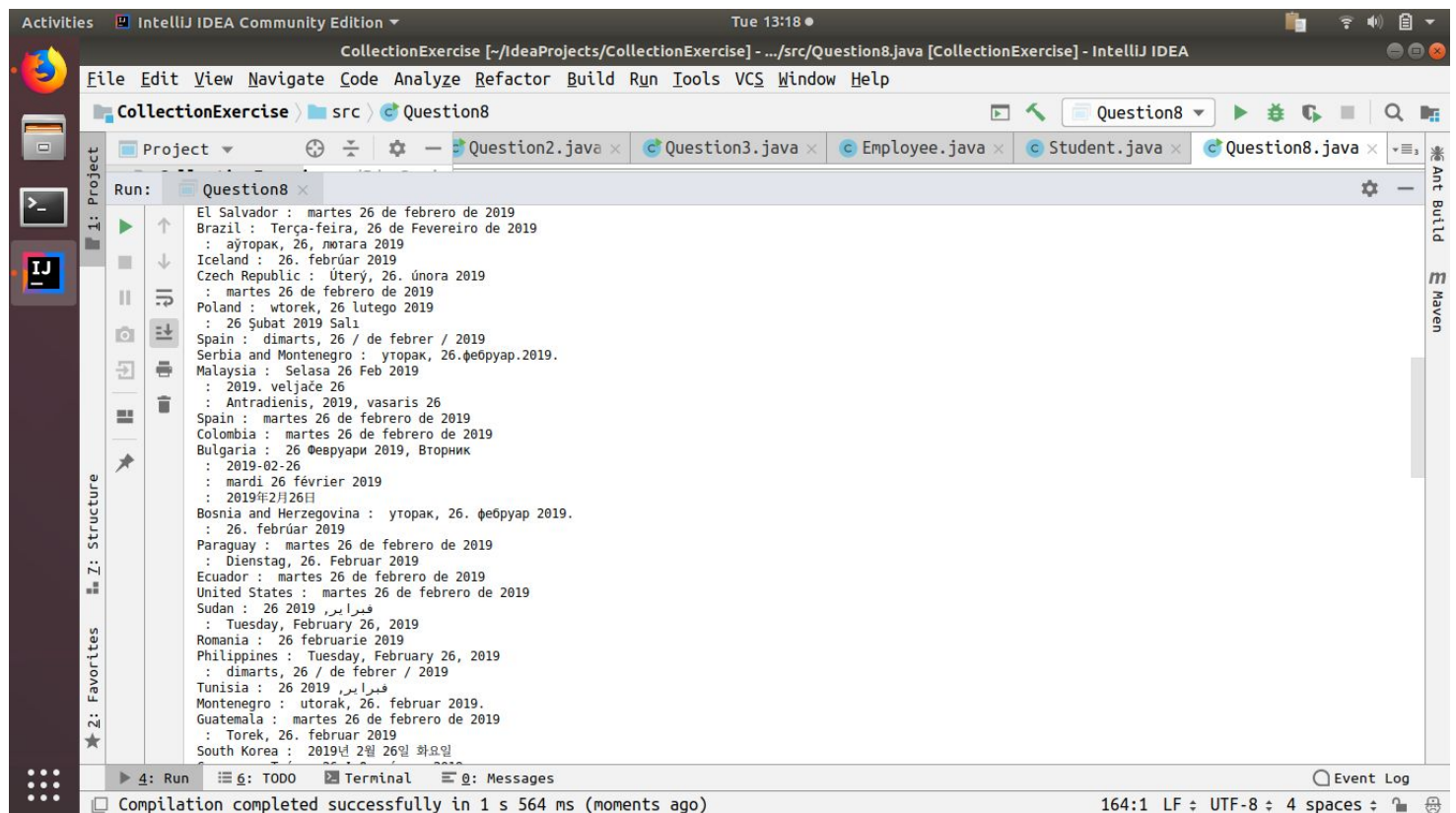


```
1 import java.text.DateFormat;
2 import java.text.Format;
3 import java.text.SimpleDateFormat;
4 import java.util.Arrays;
5 import java.util.Date;
6 import java.util.List;
7 import java.util.Locale;
8
9 public class Question8 {
10     public static void main(String[] args) {
11         List<Locale> locales = Arrays.asList(Locale.getAvailableLocales());
12         DateFormat dateFormat;
13         for(Locale l : locales)
14         {
15             dateFormat= DateFormat.getDateInstance(DateFormat.FULL,l);
16             System.out.println( l.getDisplayCountry() + " : "+dateFormat.format(new Date()));
17         }
18     }
19 }
20
```

Run: Question8 x

4: Run 6: TODO 8: Messages

Compilation completed successfully in 1 s 564 ms (moments ago) 164:1 LF ÷ UTF-8 ÷ 4 spaces ÷



```
El Salvador : martes 26 de febrero de 2019
Brazil : Terça-feira, 26 de Fevereiro de 2019
       : аўторак, 26, лютага 2019
Iceland : 26. febrúar 2019
Czech Republic : Úterý, 26. února 2019
       : martes 26 de febrero de 2019
Poland : wtorek, 26 lutego 2019
       : 26 Şubat 2019 Salı
Spain : dimarts, 26 / de febrer / 2019
Serbia and Montenegro : уторак, 26. фебруар.2019.
Malaysia : Selasa 26 Feb 2019
       : 2019. veljače 26
       : Antradienis, 2019, vasaris 26
Spain : martes 26 de febrero de 2019
Colombia : martes 26 de febrero de 2019
Bulgaria : 26 Февруари 2019, Вторник
       : 2019-02-26
       : mardi 26 février 2019
       : 2019年2月26日
Bosnia and Herzegovina : уторак, 26. фебруар 2019.
       : 26. febrúar 2019
Paraguay : martes 26 de febrero de 2019
       : Dienstag, 26. Februar 2019
Ecuador : martes 26 de febrero de 2019
United States : martes 26 de febrero de 2019
Sudan : 26 فبراير 2019
       : Tuesday, February 26, 2019
Romania : 26 februarie 2019
Philippines : Tuesday, February 26, 2019
       : dimarts, 26 / de febrer / 2019
Tunisia : 26 فبراير 2019
Montenegro : utorak, 26. februar 2019.
Guatemala : martes 26 de febrero de 2019
       : Torek, 26. februar 2019
South Korea : 2019년 2월 26일 화요일
```

Run: Question8 x

4: Run 6: TODO 8: Messages

Compilation completed successfully in 1 s 564 ms (moments ago) 164:1 LF ÷ UTF-8 ÷ 4 spaces ÷

Activities IntelliJ IDEA Community Edition Tue 13:18

CollectionExercise [-/IdeaProjects/CollectionExercise] - .../src/Question8.java [CollectionExercise] - IntelliJ IDEA

File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help

CollectionExercise > src > Question8

Project > Question2.java > Question3.java > Employee.java > Student.java > Question8.java

Run: Question8

```
: yторак, 26.феврыя.2019.  
Libya : 26 2019, فبراير  
: It-Tlieta, 26 ta' Frar 2019  
Switzerland : martedì, 26. febbraio 2019  
: 26. februar 2019  
Germany : Dienstag, 26. Februar 2019  
Algeria : 26 2019, فبراير  
Slovakia : Utorok, 2019, februára 26  
Lithuania : Antradienis, 2019, vasaris 26  
Italy : martedì 26 febbraio 2019  
Ireland : 26 February 2019  
Singapore : 26 二月 2019  
: 26 februarie 2019  
Canada : Tuesday, February 26, 2019  
Belgium : dinsdag 26 februari 2019  
: 26. februar 2019  
: wtorek, 26 lutego 2019  
China : 2019年2月26日 星期二  
Japan : 2019年2月26日  
Greece : Dienstag, 26. Februar 2019  
Serbia : utorak, 26. februar 2019.  
2019 פרידאג 26 פברואר :  
India : Tuesday, 26 February, 2019  
Lebanon : 26 2019, شباط  
Nicaragua : martes 26 de febrero de 2019  
: 2019年2月26日 星期二  
Macedonia : вторник, 26, февруари 2019  
Belarus : аўторак, 26, лютага 2019  
Slovenia : Torek, 26. februar 2019  
Peru : martes 26 de febrero de 2019  
Indonesia : Selasa 26 Februari 2019  
United Kingdom : Tuesday, 26 February 2019
```

Process finished with exit code 0

4: Run 6: TODO Terminal 0: Messages Event Log

Compilation completed successfully in 1 s 564 ms (moments ago) 164:1 LF UTF-8 4 spaces