

Before you begin:

In this lab work, your task will require you to work on the Iterator pattern example code. You can find the code in Blackboard Week 3 folder, which is inside “Contents”. The name of the file is **IteratorPattern.java**. Please download the code and run it.

Important: You are not allowed to use built-in Iterators in Java. For this lab, IteratorPattern.java code that you have studied before is sufficient. Please follow the structure given in that code.

Your task:

Your task is to use this example code to write a program in which a list of TV channels is iterated. Please, read all the steps below first, before you start your implementation. These steps define the classes and some behaviors and are recommended to be implemented in the given order. You must figure out participant mappings. This means that you write as comments in your programs which class in the problem corresponds to which participant class in the Iterator Pattern.

1. Create a **Channel** class. This class has three attributes: **name**, **frequency** and **countryOrigin**. Name is self-explanatory. Frequency is a number between 0 – 999, which is unique for each channel. Lastly, **countryOrigin** is the name of the country that the channel is broadcasted. Implement getters for all attributes and override **toString()**.

toString format: name \t countryOrigin \t frequency

2. Make the necessary changes to incorporate Channel class into the code and run it. When your newly modified code runs as it is now, it should print all the channels you will add in the main.

Note: You can use the Channel data below in your main.

```
"Das Erste", "Germany", 10
"CCTV-1", "China", 657
"NOW", "Türkiye", 555
"Show Tv", "Türkiye", 0
"TVNZ-1", "New Zealand", 999
"CNC World", "China", 789
"TRT-1", "Türkiye", 676
"ZDF", "Germany", 155
"Mehwar TV", "Egypt", 56
```

3. Add a new Iterator: **TurkiyeIterator**. As the name suggests, it will traverse only the channels that are broadcasted in “Türkiye.” Therefore, if you use the example data above, we should see 3 channels on the screen.
4. Add another Iterator: **FrequencyIterator**. As the name suggests, it will traverse only the channels in an interval given by the user. User enters a number between “10 – 999” and interval becomes “0 – userNumber”. Therefore, if you use the example data above and enter “10”, we should see 2 channels on the screen.
5. You need a way to create these iterators through **createIterator** method. Remember what we have discussed in the class.
6. Lastly, run your completed code and show the usage of three different iterators.