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. You should follow the structure provided in that code.

Your task:

Your task is to use this example code to write a program in which a list of TV channels are iterated. Please read all the steps below once and then start by implementing the first one. The steps will define the classes and some behaviors. However, it will not say that which participant the class is in the Iterator Pattern. You need to figure it out, if needed.

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 3 different iterators.