## CT3535 Assignment B1

## Source code:

```
//Import ArrayList for infiniList
import java.util.ArrayList;
//Implements Runnable for Multi-threading
public class Iterator implements Runnable{
      //infiniList, a static ArrayList of type String, to be filled with 3
strings
      //"This", "is", & "infinite" infinitely
      public static ArrayList<String> infiniList = new ArrayList<String>();
      //Creating variables for code
      private String name;
      private Thread t;
      //Iterator, which creates and calls the Thread instances
      Iterator(String ThreadName) {
            name = ThreadName;
            t = new Thread(this, name);
            System.out.println(t + " Created");
            t.start();
      //Run function, which checks the last entry in the
      //infiniList ArrayList, & adds the next string value into it
      //then prints out the current state of the infiniList ArrayList
      Public synchronized void run() {
            //Posterity printout code to know if the program is working
            System.out.println(t + "Running");
                  try {
                        while(true) {
                        //checks if 'This' was the last value, then adds
'if' if true
                              if(infiniList.get(infiniList.size()-1) ==
"This") {
                                    infiniList.add("is");
                                    System.out.println(infiniList);
                        //checks if 'is' was the last value, then adds
'infinite' if true
                                    else
if(infiniList.get(infiniList.size()-1) == "is") {
                                    infiniList.add("infinite");
                                    System.out.println(infiniList);
                        //adds infinite otherwise
                              else {
                                    infiniList.add("This");
                                    System.out.println(infiniList);
                  //a catch statement for any exceptions that the code
throws up
                  //prints out that the thread interrupted, & what the
problem is
                  }catch (Exception e) {
                        System.out.println(t + "Interrupted.");
```

```
System.out.println(e.getMessage());
}

//Posterity printout code to know if the program is
working

System.out.println(t + "Exiting");
}

public static void main(String[] args) {
    //adding This to the list to start the programs
conditional code off
    infiniList.add("This");

    //Thread instance declaraton
    Iterator t1 = new Iterator("Thread 1");
    Iterator t2 = new Iterator("Thread 2");
    Iterator t3 = new Iterator("Thread 3");
}
```

## Screenshot of code running:

```
Thread(Thread 1, 5, main) Created
Thread(Ihread 2, 5, main) Created
Thread(Ihread 3, 5, main) Created
Thread(Ihread 1, 5, main) Created
Thread(Ihread 3, 5, main) Rumning
(This, 1s, infinite, This, 1s)
Thread(Ihread 3, 5, main) Rumning
(This, 1s, infinite, This, 1s)
(This, 1s, infinite, This, 1s)
(This, 1s, infinite, This, 1s)
(This, 1s, infinite, This, 1s, infinite, This, 1s)
(This, 1s, infinite, This, 1s, infinite, This
```