1. Write a program in JAVA to implement multithreading as follows:
    a. Use Runnable interface to create the user defined thread class
    b. Run three different threads in parallel
    c. Each thread should countdown from 5 to 1 in 0.5 second interval
    d. Demonstrate the use of *isAlive()* and *join()* methods
2. Write a program in JAVA to implement priority in multithreading as follows:
    a. Create three threads with priority 1, 5 and 9 respectively
    b. Update a counter in each of the threads for 500 msec. Print the final value of the count from each thread.
    c. Also calculate the percentage of CPU taken by each thread
3. Write a program in JAVA to implement synchronization in multithreading as follows:
    a. Create a class **TArray** to implement the following:
        i. An integer array of desired size
        ii. A method *add()* to add value into the array [test this method with and without applying synchronization]
        iii. A method *display()* to print the contents of the array
    b. Create a Thread class **writeThread** to add three values into the array created by **TArray**
    c. Create two threads using **writeThread** class and test their functionality
    d. Print the initial and final contents of the array
4. Write a program in JAVA to implement inter thread communication in multithreading as follows:
    a. Create a class **Buffer** as follows:
        i. Two instance variables – one to check state of the Buffer and another is value
        ii. Two methods, namely *put()* and *get()* to insert and remove values in the Buffer
    b. Create two Thread classes **Producer** and **Consumer** to implement the producer-consumer problem in synchronized manner