ASSIGNMENT - BASICS OF MULTI THREADING 1

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Q1) Create and Run a Thread using Runnable Interface and Thread class and show usage of sleep and join methods in the created threads.

```
tushar@ttnpl-tusharahuja:MULTITHREADING1 (main)$ javac Q1.java && java Q1
Runnable thread is running.
Thread class thread is running.
Thread class thread is done.
Runnable thread is done.
All threads are completed.
```

Q2) Use a singleThreadExecutor, newCachedThreadPool() and newFixedThreadPool() to submit a list of tasks and wait for completion of all tasks.

```
tushar@ttnpl-tusharahuja:MULTITHREADING1 (main)$ javac Q2.java && java Q2
Task 1
Task 1
Task 2
Task 3
Task 2
Task 1
Task 3
Task 3
Task 2
```

Q3) Use Synchronize method and synchronize block to enable synchronization between multiple threads trying to access method at same time.

```
tushar@ttnpl-tusharahuja:MULTITHREADING1 (main)$ javac Q3.java && java Q3
5
10
15
20
25
100
200
300
400
500
```

Q4) WAP to show usage of Callable and demonstrate how it is different from Runnable

```
tushar@ttnpl-tusharahuja:MULTITHREADING1 (main)$ javac Q4.java && java Q4
200
```

Q5) Write a program to simulate a deadlock in java and then improve the program to handle the deadlock using reentract lock.

```
tushar@ttnpl-tusharahuja:MULTITHREADING1 (main)$ javac Q5.java && java Q5
Counter is : 20
```