

Package Explorer ×

- CDAC NOIDA PGDAI ASSIGNMENT - 1
- CDAC NOIDA PGDAI ASSIGNMENT - 10
- CDAC NOIDA PGDAI ASSIGNMENT - 11
  - src
    - (default package)
      - BankAccount.java
    - JRE System Library [jre]
    - ~\$CDAC NOIDA\_ PGDAI\_ MODULE 7 \_ JAVA PROGRAMMING
    - CDAC NOIDA\_ PGDAI\_ MODULE 7 \_ JAVA PROGRAMMING
  - CDAC NOIDA PGDAI ASSIGNMENT - 2
  - CDAC NOIDA PGDAI ASSIGNMENT - 3
  - CDAC NOIDA PGDAI ASSIGNMENT - 4
  - CDAC NOIDA PGDAI ASSIGNMENT - 5
  - CDAC NOIDA PGDAI ASSIGNMENT - 6
  - CDAC NOIDA PGDAI ASSIGNMENT - 7
  - CDAC NOIDA PGDAI ASSIGNMENT - 8
  - CDAC NOIDA PGDAI ASSIGNMENT - 9

Task List ×

Find  All Activate...

Outline ×

- BankAccount

Problems @ Javadoc Console ×

<terminated> Circle\_10 [Java Application] C:\Users\Advait\Desktop\SOFTWARES\eclipse-jee-2025-03-R-win32-x86\_64\eclipse\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86\_64\_21.0.6.v20250130-0529\jre\b

```
1 // Name : ADVAIT GURUNATH CHAVAN
2 // Email ID : advaitchavan135@gmail.com
3 // CDAC NOIDA JAVA PROGRAMMING Assignment 11 - Question - 1 -- BankAccount
4
5 class BankAccount {
6     private double balance;
7
8     public BankAccount(double balance) {
9         this.balance = balance;
10    }
11
12    public synchronized void deposit(double amount) {
13        balance += amount;
14        System.out.println(Thread.currentThread().getName() +
15                            " deposited: " + amount + " | New balance: " + balance);
16    }
17
18    public synchronized void withdraw(double amount) {
19        if (balance >= amount) {
20            balance -= amount;
21            System.out.println(Thread.currentThread().getName() +
22                                " withdrew: " + amount + " | New balance: " + balance);
23        } else {
24            System.out.println(Thread.currentThread().getName() +
25                                " attempted to withdraw: " + amount + " | Insufficient funds");
26        }
27    }
28
29    public double getBalance() {
30        return balance;
31    }
32 }
```

File Edit Source Refactor Navigate Search Project Run Window Help

Package Explorer

CDAC NOIDA PGDAI ASSIGNMENT - 11

src

BankAccountTest.java

Account.java

TestBank.java

Rectangle\_1...

Circle\_10.java

BankAccount...

ConcurrentBa...

Task List

Find

All

Activate...

Outline

ConcurrentBankAccountTest

1 // Name : ADVAIT GURUNATH CHAVAN

2 // Email ID : advaitchavan135@gmail.com

3 // CDAC NOIDA JAVA PROGRAMMING Assignment 11 - Question - 1 -- ConcurrentBankAccountTest

4

5 public class ConcurrentBankAccountTest {

6 public static void main(String[] args) {

7 BankAccount account = new BankAccount(1000);

8

9 Runnable depositTask = () -> {

10 for (int i = 0; i < 5; i++) {

11 account.deposit(100);

12 try { Thread.sleep(50); } catch (InterruptedException e) { }

13 }

14 };

15

16 Runnable withdrawTask = () -> {

17 for (int i = 0; i < 5; i++) {

18 account.withdraw(50);

19 try { Thread.sleep(50); } catch (InterruptedException e) { }

20 }

21 };

22

23 Thread t1 = new Thread(depositTask, "Depositor");

24 Thread t2 = new Thread(withdrawTask, "Withdrawer");

25

26 t1.start();

27 t2.start();

28

Problems

Javadoc

Console

<terminated> ConcurrentBankAccountTest [Java Application] C:\Users\Advait\Desktop\SOFTWARES\eclipse-jee-2025-03-R-win32-x86\_64\eclipse\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86\_64\_21.0.6.v20250310-1920\jre\bin\java.exe

Depositor deposited: 100.0 | New balance: 1100.0

Withdrawer withdrew: 50.0 | New balance: 1050.0

Withdrawer withdrew: 50.0 | New balance: 1000.0

Depositor deposited: 100.0 | New balance: 1100.0

Withdrawer withdrew: 50.0 | New balance: 1050.0

Depositor deposited: 100.0 | New balance: 1150.0

Withdrawer withdrew: 50.0 | New balance: 1100.0

Depositor deposited: 100.0 | New balance: 1200.0

Withdrawer withdrew: 50.0 | New balance: 1150.0

Depositor deposited: 100.0 | New balance: 1250.0

Final balance: 1250.0

Writable

Smart Insert

36 : 2 : 1197

00:59

14-06-2025

File Edit Source Refactor Navigate Search Project Run Window Help

Package Explorer

CDAC NOIDA PGDAI ASSIGNMENT - 1

CDAC NOIDA PGDAI ASSIGNMENT - 10

CDAC NOIDA PGDAI ASSIGNMENT - 11

src

(default package)

Assignment\_11\_qs\_2.java

BankAccount.java

ConcurrentBankAccountTest.java

JRE System Library [jre]

~\$CDAC NOIDA\_\_PGDAI\_\_MODULE 7 \_\_JAVA PROGRAMMING

CDAC NOIDA\_\_PGDAI\_\_MODULE 7 \_\_JAVA PROGRAMMING

Assignment\_11\_qs\_2.java

Assignment\_11\_qs\_2.java

Assignment\_11\_qs\_2.java

ConcurrentBa...

Assignment\_11\_qs\_2.java

1 // Name : ADVAIT GURUNATH CHAVAN

2 // Email ID : advaitchavan135@gmail.com

3 // CDAC NOIDA JAVA PROGRAMMING Assignment 11 - Question - 2

4

5 import java.util.concurrent.\*;

6

7 public class Assignment\_11\_qs\_2 {

8 public static boolean isPrime(int n) {

9 if (n <= 1) return false;

10 for (int i = 2; i <= Math.sqrt(n); i++) {

11 if (n % i == 0) return false;

12 }

13 return true;

14 }

15

16 public static void main(String[] args) throws Exception {

17 int limit = 10000;

18 int numThreads = 4;

19 ExecutorService executor = Executors.newFixedThreadPool(numThreads);

20 Future<Long>[] futures = new Future[numThreads];

21 int range = limit / numThreads;

22

23 for (int i = 0; i < numThreads; i++) {

24 int start = i \* range + 1;

25 int end = (i == numThreads - 1) ? limit : (i + 1) \* range;

26 futures[i] = executor.submit(() -> {

27 long sum = 0;

28 for (int j = start; j <= end; j++) {

29 if (isPrime(j)) sum += j;

30 }

31 return sum;

32 });

33 }

34

35 for (Future<Long> future : futures) {

36 sum += future.get();

37 }

38 System.out.println("Sum of primes up to " + limit + " = " + sum);

39 }

Task List

Find

All

Activate...

Outline

Assignment\_11\_qs\_2

Problems

Console

<terminated> Assignment\_11\_qs\_2 [Java Application] C:\Users\Advait\Desktop\SOFTWARES\eclipse-jee-2025-03-R-win32-x86\_64\eclipse\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86\_64\_21.0.6.v20250130

Sum of primes up to 10000 = 5736396

Writable

Smart Insert

7 : 27 : 200

Type here to search

01:01

14-06-2025

Package Explorer

CDAC NOIDA PGDAI ASSIGNMENT - 1

CDAC NOIDA PGDAI ASSIGNMENT - 10

CDAC NOIDA PGDAI ASSIGNMENT - 11

src

(default package)

Assignment\_11\_qs\_2.java

Assignment\_11\_qs\_3.java

BankAccount.java

ConcurrentBankAccountTest.java

JRE System Library [jre]

~\$CDAC NOIDA\_ PGDAI\_ MODULE 7 \_\_ JAVA PROGRAMMING

CDAC NOIDA\_ PGDAI\_ MODULE 7 \_\_ JAVA PROGRAMMING

CDAC NOIDA PGDAI ASSIGNMENT - 2

CDAC NOIDA PGDAI ASSIGNMENT - 3

CDAC NOIDA PGDAI ASSIGNMENT - 4

CDAC NOIDA PGDAI ASSIGNMENT - 5

CDAC NOIDA PGDAI ASSIGNMENT - 6

CDAC NOIDA PGDAI ASSIGNMENT - 7

CDAC NOIDA PGDAI ASSIGNMENT - 8

CDAC NOIDA PGDAI ASSIGNMENT - 9

Assignment\_11\_qs\_3.java - Eclipse IDE

File Edit Source Refactor Navigate Search Project Run Window Help

Assignment\_11\_qs\_3

4

5import java.util.concurrent.ConcurrentHashMap;

6import java.util.concurrent.ExecutorService;

7import java.util.concurrent.Executors;

8

9public class Assignment\_11\_qs\_3 {

10public static void main(String[] args) {

11ConcurrentHashMap<String, Integer> map = new ConcurrentHashMap<>();

12// Initial entries

13map.put("A", 1);

14map.put("B", 2);

15map.put("C", 3);

16

17ExecutorService executor = Executors.newFixedThreadPool(3);

18Runnable task1 = () -> map.compute("A", (k, v) -> v + 10);

19Runnable task2 = () -> map.computeIfPresent("B", (k, v) -> v \* 2);

20Runnable task3 = () -> map.putIfAbsent("D", 4);

21

22executor.submit(task1);

23executor.submit(task2);

24executor.submit(task3);

25executor.shutdown();

26while (!executor.isTerminated()) { }

27System.out.println("Updated Map: " + map);

28}

29}

30

Task List

Find

All

Activate...

Outline

Assignment\_11\_qs\_3

Problems @ Javadoc Console

<terminated> Assignment\_11\_qs\_3 [Java Application] C:\Users\Advait\Desktop\SOFTWARES\eclipse-jee-2025-03-R-win32-x86\_64\eclipse\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86\_64\_21.0.6.v20250130

Updated Map: {A=11, B=4, C=3, D=4}

Writable Smart Insert

9 : 32 : 307

01:03 14-06-2025

File Edit Source Refactor Navigate Search Project Run Window Help

Package Explorer

CDAC NOIDA PGDAI ASSIGNMENT - 11

src

Assignment\_11\_qs\_2.java

Assignment\_11\_qs\_3.java

Assignment\_11\_qs\_4.java

BankAccount.java

ConcurrentBankAccountTest.java

Assignment\_11\_qs\_4.java

```
1 // Name : ADVAIT GURUNATH CHAVAN
2 // Email ID : advaitchavan135@gmail.com
3 // CDAC NOIDA JAVA PROGRAMMING Assignment 11 - Question - 4
4
5 import java.util.concurrent.Exchanger;
6
7 public class Assignment_11_qs_4 {
8     public static void main(String[] args) {
9         Exchanger<String> exchanger = new Exchanger<>();
10
11         Thread thread1 = new Thread(() -> {
12             String data1 = "Data from Thread1";
13             try {
14                 String received = exchanger.exchange(data1);
15                 System.out.println("Thread1 received: " + received);
16             } catch (InterruptedException e) {
17                 e.printStackTrace();
18             }
19         });
20
21         Thread thread2 = new Thread(() -> {
22             String data2 = "Data from Thread2";
23             try {
24                 String received = exchanger.exchange(data2);
25                 System.out.println("Thread2 received: " + received);
26             } catch (InterruptedException e) {
27                 e.printStackTrace();
28             }
29         });
30     }
31 }
```

Task List

Find All Activate...

Outline

1\_qs\_4

Press 'F2' for focus

Problems @ Javadoc Console

<terminated> Assignment\_11\_qs\_4 [Java Application] C:\Users\Advait\Desktop\SOFTWARES\eclipse-jee-2025-03-R-win32-x86\_64\eclipse\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86\_64\_21.0.6.v20250130

Thread1 received: Data from Thread2

Thread2 received: Data from Thread1

Writable Smart Insert 7 : 32 : 213

Desktop 01:06 14-06-2025

Package Explorer

CDAC NOIDA PGDAI ASSIGNMENT - 1

CDAC NOIDA PGDAI ASSIGNMENT - 10

CDAC NOIDA PGDAI ASSIGNMENT - 11

src

(default package)

Assignment\_11\_qs\_2.java

Assignment\_11\_qs\_3.java

Assignment\_11\_qs\_4.java

Assignment\_11\_qs\_5.java

BankAccount.java

ConcurrentBankAccountTest.java

JRE System Library [jre]

~\$CDAC NOIDA\_\_ PGDAI\_\_ MODULE 7 \_\_ JAVA PROGRAMMING

CDAC NOIDA\_\_ PGDAI\_\_ MODULE 7 \_\_ JAVA PROGRAMMING

CDAC NOIDA PGDAI ASSIGNMENT - 2

CDAC NOIDA PGDAI ASSIGNMENT - 3

CDAC NOIDA PGDAI ASSIGNMENT - 4

CDAC NOIDA PGDAI ASSIGNMENT - 5

CDAC NOIDA PGDAI ASSIGNMENT - 6

CDAC NOIDA PGDAI ASSIGNMENT - 7

CDAC NOIDA PGDAI ASSIGNMENT - 8

CDAC NOIDA PGDAI ASSIGNMENT - 9

Assignment\_11\_qs\_5.java

```
1 // Name : ADVAIT GURUNATH CHAVAN
2 // Email ID : advaitchavan135@gmail.com
3 // CDAC NOIDA JAVA PROGRAMMING Assignment 11 - Question - 5
4
5 import java.util.concurrent.*;
6
7 public class Assignment_11_qs_5 {
8     public static void main(String[] args) {
9         ScheduledExecutorService scheduler = Executors.newScheduledThreadPool(1);
10         Runnable task = () ->
11             System.out.println("Scheduled task executed at: " + System.currentTimeMillis());
12
13         // Schedule the task to run after a 3-second delay
14         scheduler.schedule(task, 3, TimeUnit.SECONDS);
15
16         // Alternatively, schedule at a fixed rate:
17         // scheduler.scheduleAtFixedRate(task, 0, 2, TimeUnit.SECONDS);
18
19         scheduler.shutdown();
20     }
21 }
22
```

Task List

Find

All

Activate...

Outline

Assignment\_11\_qs\_5

Problems

@ Javadoc

Console

<terminated> Assignment\_11\_qs\_5 [Java Application] C:\Users\Advait\Desktop\SOFTWARES\eclipse-jee-2025-03-R-win32-x86\_64\eclipse\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86\_64\_21.0.6.v20250130

Scheduled task executed at: 1749843482642

Writable

Smart Insert

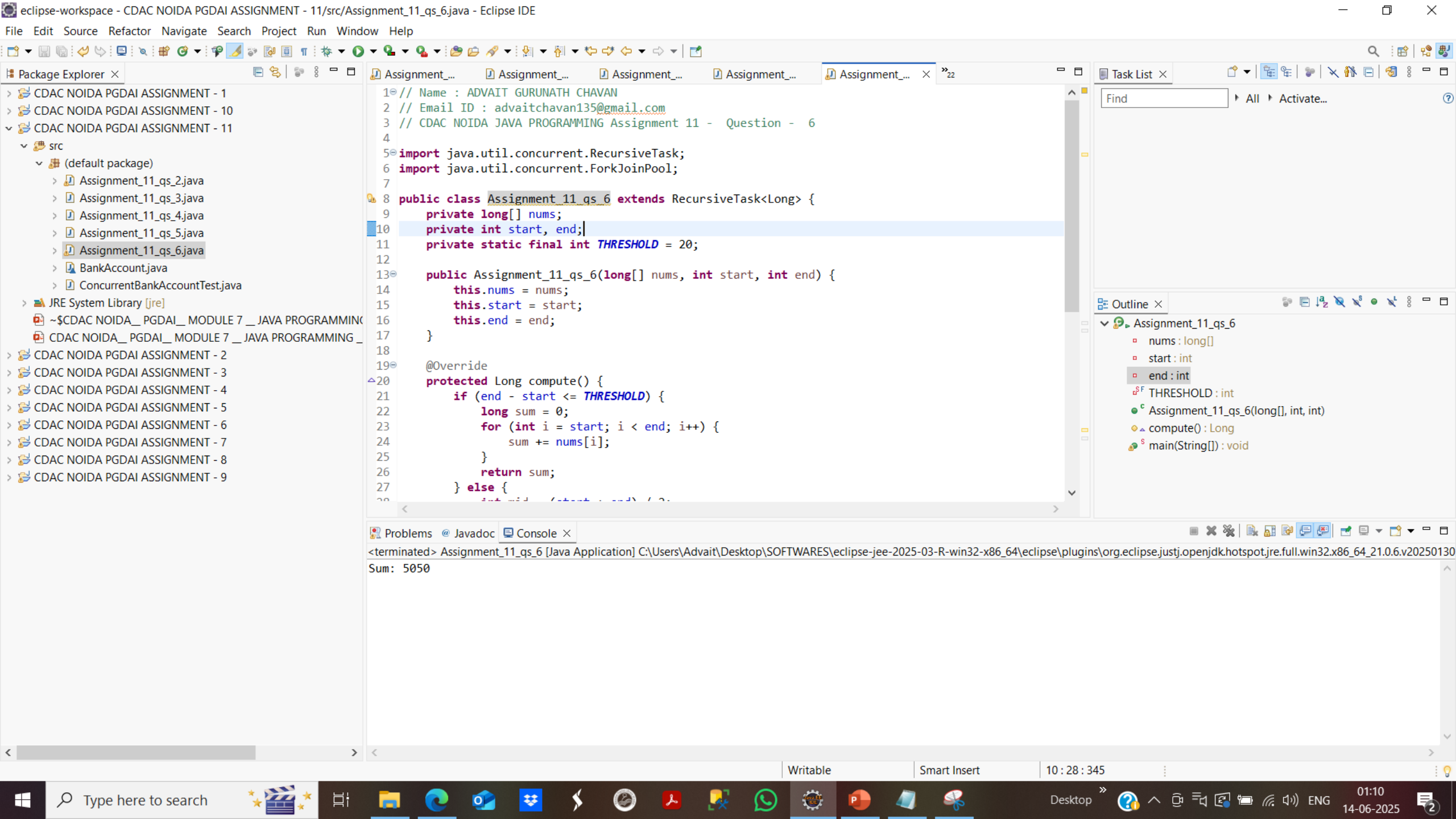
7 : 32 : 205

Desktop

01:08

14-06-2025





File Edit Source Refactor Navigate Search Project Run Window Help

Package Explorer

CDAC NOIDA PGDAI ASSIGNMENT - 11/src/Assignment\_11\_qs\_7.java - Eclipse IDE

CDAC NOIDA PGDAI ASSIGNMENT - 11

src

(default package)

Assignment\_11\_qs\_2.java

Assignment\_11\_qs\_3.java

Assignment\_11\_qs\_4.java

Assignment\_11\_qs\_5.java

Assignment\_11\_qs\_6.java

Assignment\_11\_qs\_7.java

BankAccount.java

ConcurrentBankAccountTest.java

Assignment\_11\_qs\_7.java

```
1 // Name : ADVAIT GURUNATH CHAVAN
2 // Email ID : advaitchavan135@gmail.com
3 // CDAC NOIDA JAVA PROGRAMMING Assignment 11 - Question - 7
4
5 import java.util.concurrent.*;
6
7 public class Assignment_11_qs_7 {
8     public static void main(String[] args) {
9         ExecutorService executor = Executors.newFixedThreadPool(1);
10         Callable<String> task = () -> {
11             Thread.sleep(2000); // Simulate a time-consuming computation
12             return "Task's execution result";
13         };
14
15         Future<String> future = executor.submit(task);
16         System.out.println("Task submitted ...");
17         try {
18             // Blocks until the task completes and returns the result
19             String result = future.get();
20             System.out.println("Result: " + result);
21         } catch (InterruptedException | ExecutionException e) {
22             e.printStackTrace();
23         }
24         executor.shutdown();
25     }
26 }
27
```

Task List

Find All Activate...

Outline

Assignment\_11\_qs\_7

Problems @ Javadoc Console

<terminated> Assignment\_11\_qs\_7 [Java Application] C:\Users\Advait\Desktop\SOFTWARES\eclipse-jee-2025-03-R-win32-x86\_64\eclipse\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86\_64\_21.0.6.v20250130

Task submitted ...

Result: Task's execution result

Writable Smart Insert 7 : 32 : 205

Desktop 01:11 14-06-2025



File

Edit

Source

Refactor

Navigate

Search

Project

Run

Window

Help

Package Explorer

CDAC NOIDA PGDAI ASSIGNMENT - 11

src

Assignment\_11\_qs\_2.java

Assignment\_11\_qs\_3.java

Assignment\_11\_qs\_4.java

Assignment\_11\_qs\_5.java

Assignment\_11\_qs\_6.java

Assignment\_11\_qs\_7.java

Assignment\_11\_qs\_8.java

BankAccount.java

ConcurrentBankAccountTest.java

Assignment\_11\_qs\_8.java

1 // Name : ADVAIT GURUNATH CHAVAN

2 // Email ID : advaitchavan135@gmail.com

3 // CDAC NOIDA JAVA PROGRAMMING Assignment 11 - Question - 8

4

5 import java.util.Queue;

6 import java.util.concurrent.ConcurrentLinkedQueue;

7

8 public class Assignment\_11\_qs\_8 {

9 public static void main(String[] args) {

10 Queue<Integer> queue = new ConcurrentLinkedQueue<>();

11

12 // Populate the queue

13 for (int i = 0; i < 10; i++) {

14 queue.offer(i);

15 }

16

17 // Define a task for polling elements

18 Runnable pollTask = () -> {

19 Integer item;

20 while ((item = queue.poll()) != null) {

21 System.out.println(Thread.currentThread().getName() + " polled: " + item);

22 }

23 }

24 }

Task List

Find

All

Activate...

Outline

Assignment\_11\_qs\_8

Problems

Javadoc

Console

<terminated> Assignment\_11\_qs\_8 [Java Application] C:\Users\Advait\Desktop\SOFTWARES\eclipse-jee-2025-03-R-win32-x86\_64\eclipse\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86\_64\_21.0.6.v20250130

Thread-2 polled: 1

Thread-2 polled: 2

Thread-2 polled: 3

Thread-1 polled: 0

Thread-2 polled: 4

Thread-1 polled: 5

Thread-2 polled: 6

Thread-1 polled: 7

Thread-2 polled: 8

Thread-1 polled: 9

Writable

Smart Insert

8 : 32 : 250

01:13

14-06-2025

Package Explorer

- CDAC NOIDA PGDAI ASSIGNMENT - 1
- CDAC NOIDA PGDAI ASSIGNMENT - 10
- CDAC NOIDA PGDAI ASSIGNMENT - 11
  - src
    - (default package)
      - Assignment\_11\_qs\_2.java
      - Assignment\_11\_qs\_3.java
      - Assignment\_11\_qs\_4.java
      - Assignment\_11\_qs\_5.java
      - Assignment\_11\_qs\_6.java
      - Assignment\_11\_qs\_7.java
      - Assignment\_11\_qs\_8.java
      - Assignment\_11\_qs\_9.java
      - BankAccount.java
      - ConcurrentBankAccountTest.java
- JRE System Library [jre]
- ~\$CDAC NOIDA\_\_ PGDAI\_\_ MODULE 7 \_\_ JAVA PROGRAMMING
- CDAC NOIDA\_\_ PGDAI\_\_ MODULE 7 \_\_ JAVA PROGRAMMING
- CDAC NOIDA PGDAI ASSIGNMENT - 2
- CDAC NOIDA PGDAI ASSIGNMENT - 3
- CDAC NOIDA PGDAI ASSIGNMENT - 4
- CDAC NOIDA PGDAI ASSIGNMENT - 5
- CDAC NOIDA PGDAI ASSIGNMENT - 6
- CDAC NOIDA PGDAI ASSIGNMENT - 7
- CDAC NOIDA PGDAI ASSIGNMENT - 8
- CDAC NOIDA PGDAI ASSIGNMENT - 9

Assignment\_11\_qs\_9.java

```
32    }
33    int val = queue.poll();
34    System.out.println("Consumed: " + val);
35    notify(); // Notify the producer that space is available
36    }
37    Thread.sleep(700); // Simulate time for consumption
38    }
39    }
40
41    public static void main(String[] args) {
42        Assignment_11_qs_9 pc = new Assignment_11_qs_9();
43        Thread producerThread = new Thread(() -> {
44            try { pc.produce(); } catch (InterruptedException e) { e.printStackTrace(); }
45        });
46        Thread consumerThread = new Thread(() -> {
47            try { pc.consume(); } catch (InterruptedException e) { e.printStackTrace(); }
48        });
49        producerThread.start();
50        consumerThread.start();
51    }
52 }
53
```

Task List

Find

Outline

- Assignment\_11\_qs\_9
  - queue : Queue<Integer>
  - LIMIT : int
  - produce() : void
  - consume() : void
  - main(String[]) : void

Problems Javadoc Console

Assignment\_11\_qs\_9 [Java Application] C:\Users\Advait\Desktop\SOFTWARES\eclipse-jee-2025-03-R-win32-x86\_64\eclipse\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86\_64\_21.0.6.v20250130-0529\jre\bin\j

Consumed: 95  
Produced: 100  
Consumed: 96  
Produced: 101  
Consumed: 97  
Produced: 102  
Consumed: 98  
Produced: 103  
Consumed: 99  
Produced: 104  
Consumed: 100  
Produced: 105  
Consumed: 101  
Produced: 106  
Consumed: 102  
Produced: 107