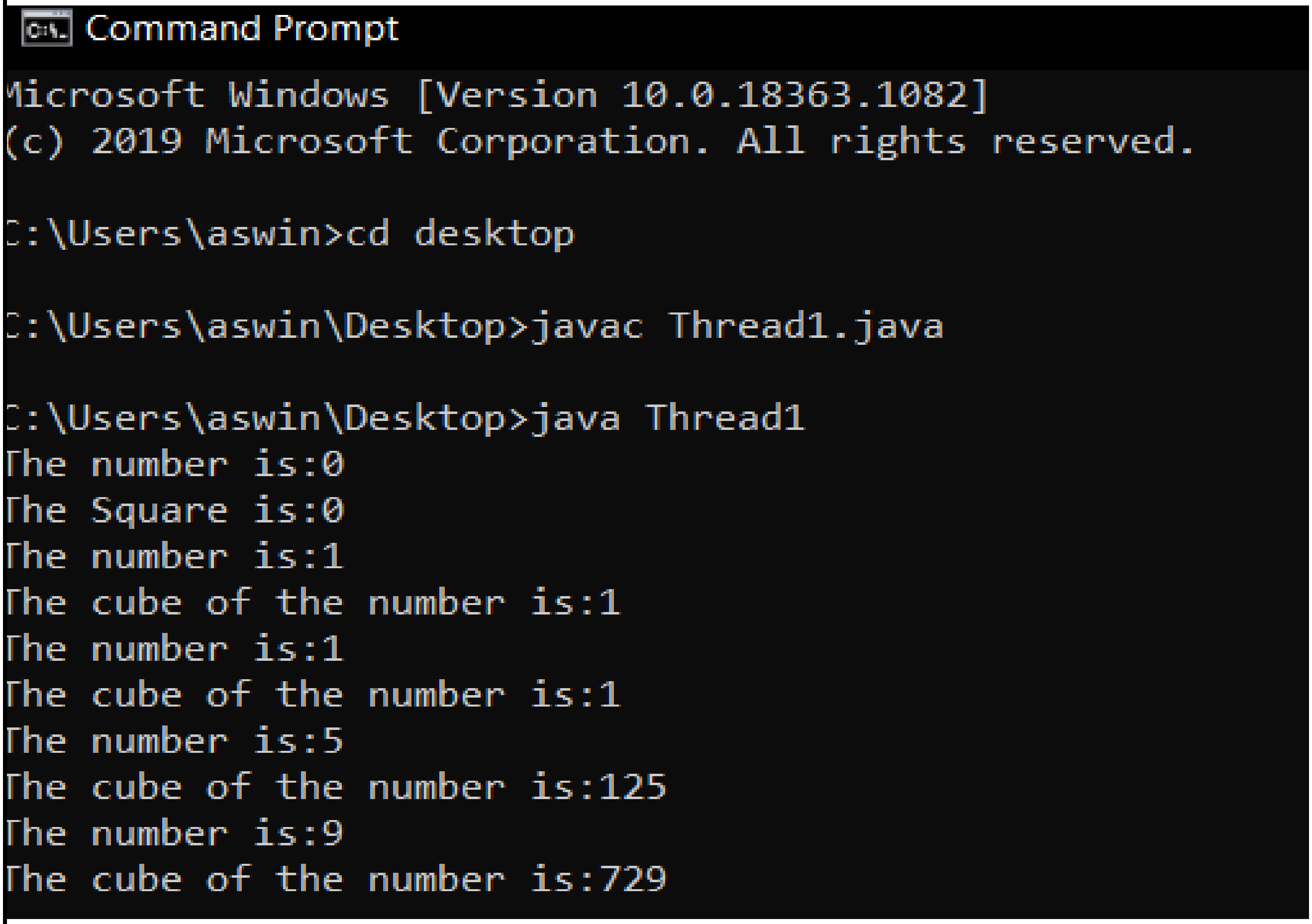
Program 1

```
import java.util.Random;
class Printnumber extends Thread{
public void run()
{
for(int i=0;i<5;i++)
{
Random r=new Random();
int x=r.nextInt(10);
System.out.println("The number is:"+x);
if(x%2==0)
{
Square s=new Square(x);
s.start();
}
else
{
Cube c=new Cube(x);
c.start();
}
try{
Thread.sleep(500);
}
catch(Exception e)
{
System.out.println(e);
}
}
}
}
class Square extends Thread{
int num;
Square(int x)
{
num=x;
}
public void run()
{
System.out.println("The Square is:"+(num*num));
}
}
class Cube extends Thread{
int num;
Cube(int x)
{
num=x;
}
public void run()
{
System.out.println("The cube of the number is:"+(num*num*num));
}
}
public class Thread1{
```

```
public static void main(String args[])
{
Printnumber P1=new Printnumber();
P1.start();
}
}
```

Result



```
Microsoft Windows [Version 10.0.18363.1082]
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C:\Users\aswin>cd desktop

C:\Users\aswin\Desktop>javac Thread1.java

C:\Users\aswin\Desktop>java Thread1
The number is:0
The Square is:0
The number is:1
The cube of the number is:1
The number is:1
The cube of the number is:1
The number is:5
The cube of the number is:125
The number is:9
The cube of the number is:729
```
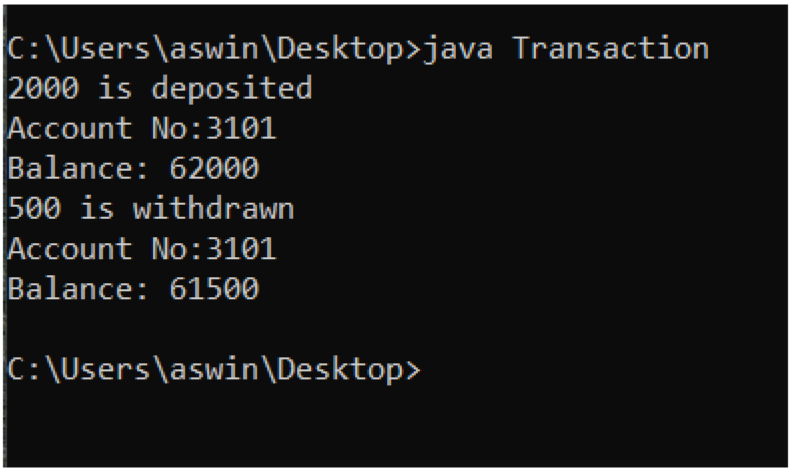

Program 2

```
class Account
              {
        public int balance;
        public int accountNo;
        void displayBalance()
        {
        System.out.println("Account No:" + accountNo + "\nBalance: " + balance);
        }


        synchronized void deposit(int amount)
        {
        balance = balance + amount;
        System.out.println( amount + " is deposited");
        displayBalance();
        }

        synchronized void withdraw(int amount)
        {
        balance = balance - amount;
        System.out.println( amount + " is withdrawn");
        displayBalance();
        }
        }

        class TransactionDeposit implements Runnable
```

```
{
int amount;
Account accountX;
TransactionDeposit(Account x, int amount)
{
accountX = x;
this.amount = amount;
new Thread(this).start();
}


public void run()
{
accountX.deposit(amount);
}
}

class TransactionWithdraw implements Runnable
{
int amount;
Account accountY;
TransactionWithdraw(Account y, int amount)
        {
accountY = y;
this.amount = amount;
new Thread(this).start();
}
public void run()
{
accountY.withdraw(amount);
}
}

public class Transaction {
public static void main(String args[]) {
Account ABC = new Account();
ABC.balance = 60000;
ABC.accountNo = 3101;
TransactionDeposit t1;
TransactionWithdraw t2;
t1 = new TransactionDeposit(ABC, 2000);
t2 = new TransactionWithdraw(ABC,500);
}
}
```

Result



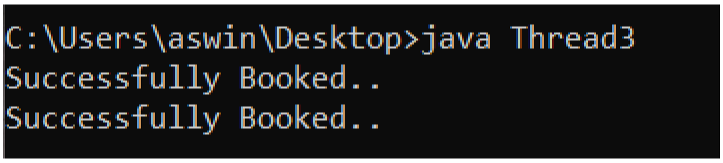
```
C:\Users\aswin\Desktop>java Transaction
2000 is deposited
Account No:3101
Balance: 62000
500 is withdrawn
Account No:3101
Balance: 61500

C:\Users\aswin\Desktop>
```

Program 3

```
class TrainTicket extends Thread{
static int Available=1;
void book(){
if(Available!=0)
{
System.out.println("Successfully Booked..");
Available=Available-1;
}
else
System.out.println("No Availability...");
}
public void run()
{
book();
try{
Thread.sleep(500);
}
catch(Exception e)
{
System.out.println(e);
}
}
}
public class Thread3{
public static void main(String args[])
{
```

```
TrainTicket obj=new TrainTicket();

Thread t1=new Thread(obj);

Thread t2=new Thread(obj);

t1.start();

t2.start();

}

}
```

Result



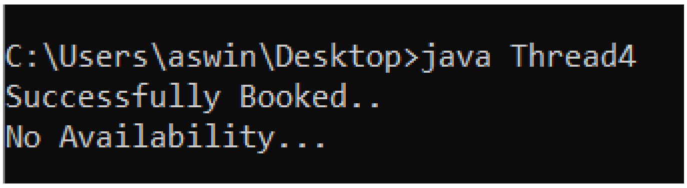
```
C:\Users\aswin\Desktop>java Thread3
Successfully Booked..
Successfully Booked..
```

Program 4

```
class TrainTicket extends Thread{
static int Available=1;
synchronized void book(){
if(Available!=0)
{
System.out.println("Successfully Booked..");
Available=Available-1;
}
else
System.out.println("No Availability...");
}
public void run()
{
book();
try{
Thread.sleep(500);
}
catch(Exception e)
{
System.out.println(e);
}
}
}
public class Thread4{
public static void main(String args[])
{
```

```
TrainTicket obj=new TrainTicket();
Thread t1=new Thread(obj);
Thread t2=new Thread(obj);
t1.start();
t2.start();
}
}
```

Result



```
C:\Users\aswin\Desktop>java Thread4
Successfully Booked..
No Availability...
```