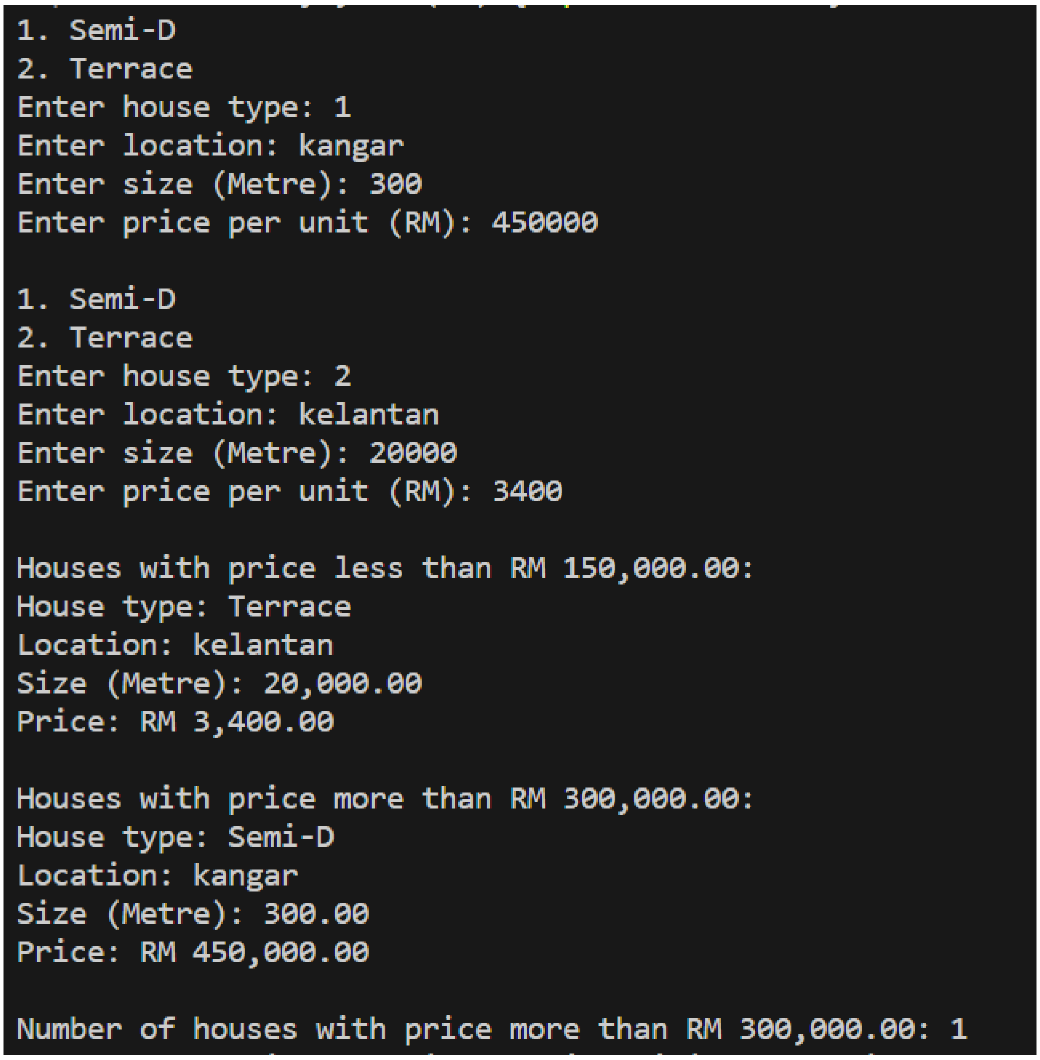
Q1

```java
import java.util.Scanner;
import java.util.LinkedList;

public class Main {
    public static void main(String[] args) {
        Scanner intInput = new Scanner(System.in);
        Scanner strInput = new Scanner(System.in);

        Queue qHouse = new Queue();
        Queue qSemi_D = new Queue();
        Queue qTerrace = new Queue();

        Queue temporary = new Queue();

        // b) Input ten (10) objects of houses and store them into qHouse.
        for (int i = 0; i < 10; i++) {
            System.out.print("1. Semi-D\n2. Terrace\nEnter house type: ");
            int typeInt = intInput.nextInt();

            String type = "";

            if (typeInt == 1)
                type = "Semi-D";
            else if (typeInt == 2)
                type = "Terrace";
            else
                System.out.println("Invalid input.");

            System.out.print("Enter location: ");
            String location = strInput.nextLine();

            System.out.print("Enter size (Metre): ");
            double size = intInput.nextDouble();

            System.out.print("Enter price per unit (RM): ");
            double price = intInput.nextDouble();

            qHouse.enqueue(new House(type, location, size, price));

            System.out.println();

        }

        // c) Get all houses from qHouse and store all type of semi-D houses
into a
        // queue called qSemi_D and all terrace houses into a queue called
qTerrace.
```

```
        while (!qHouse.isEmpty()) {
            House house = (House) qHouse.dequeue();

            if (house.getType().equals("Semi-D")) {
                qSemi_D.enqueue(house);
            } else if (house.getType().equals("Terrace")) {
                qTerrace.enqueue(house);
            }

            temporary.enqueue(house);
        }

        // restore the house back to qHouse
        while (!temporary.isEmpty()) {
            qHouse.enqueue(temporary.dequeue());
        }

        // d) Display the information of house from qTerrace that the price is
less than
        // RM150,000.

        int countTerrace = 0;

        while (!qTerrace.isEmpty()) {
            House house = (House) qTerrace.dequeue();

            if (house.getPrice() < 150000) {
                countTerrace++;
                if (countTerrace == 1)
                    System.out.println("Houses with price less than RM
150,000.00: ");
                System.out.println(house);
            }
        }

        if (countTerrace == 0)
            System.out.println("No houses with price less than RM
150,000.00.");

        // restore the house back to qTerrace
        while (!temporary.isEmpty()) {
            qTerrace.enqueue(temporary.dequeue());
        }

        // e) Count the number of houses that the price is more than RM
300,000.00 and
        // display all information for that houses from qHouse.
        int count = 0;
        while (!qHouse.isEmpty()) {
            House house = (House) qHouse.dequeue();

            if (house.getPrice() > 300000) {
                count++;
                if (count == 1)
                    System.out.println("Houses with price more than RM 
300,000.00: ");
                System.out.println(house);
            }
        }

        if (count == 0)
            System.out.println("No houses with price more than RM 
300,000.00.");

        // restore the house back to qHouse
        while (!temporary.isEmpty()) {
            qHouse.enqueue(temporary.dequeue());
        }

        System.out.println("Number of houses with price more than RM 
300,000.00: " + count);

        strInput.close();
        intInput.close();
    }
}

class Queue extends LinkedList<Object> {
    protected LinkedList<Object> list;

    public Queue() {
        list = new LinkedList<Object>();
    }

    public void enqueue(Object element) {
        list.addFirst(element);
    }

    public Object dequeue() {
        return list.removeLast();
    }

    public boolean isEmpty() {
        return list.isEmpty();
    }
```

```java
}

class House {
    private String type;
    private String location;
    private double size;
    private double price;

    public House(String type, String location, double size, double price) {
        this.type = type;
        this.location = location;
        this.size = size;
        this.price = price;
    }

    public String getType() {
        return type;
    }

    public String getLocation() {
        return location;
    }

    public double getSize() {
        return size;
    }

    public double getPrice() {
        return price;
    }

    @Override
    public String toString() {
        return "House type: " + type + "\nLocation: " + location + "\nSize
(Metre): " + String.format("%,.2f", size)
                + "\nPrice: RM " + String.format("%,.2f", price) + "\n";
    }
}
```

Sample Input/Output

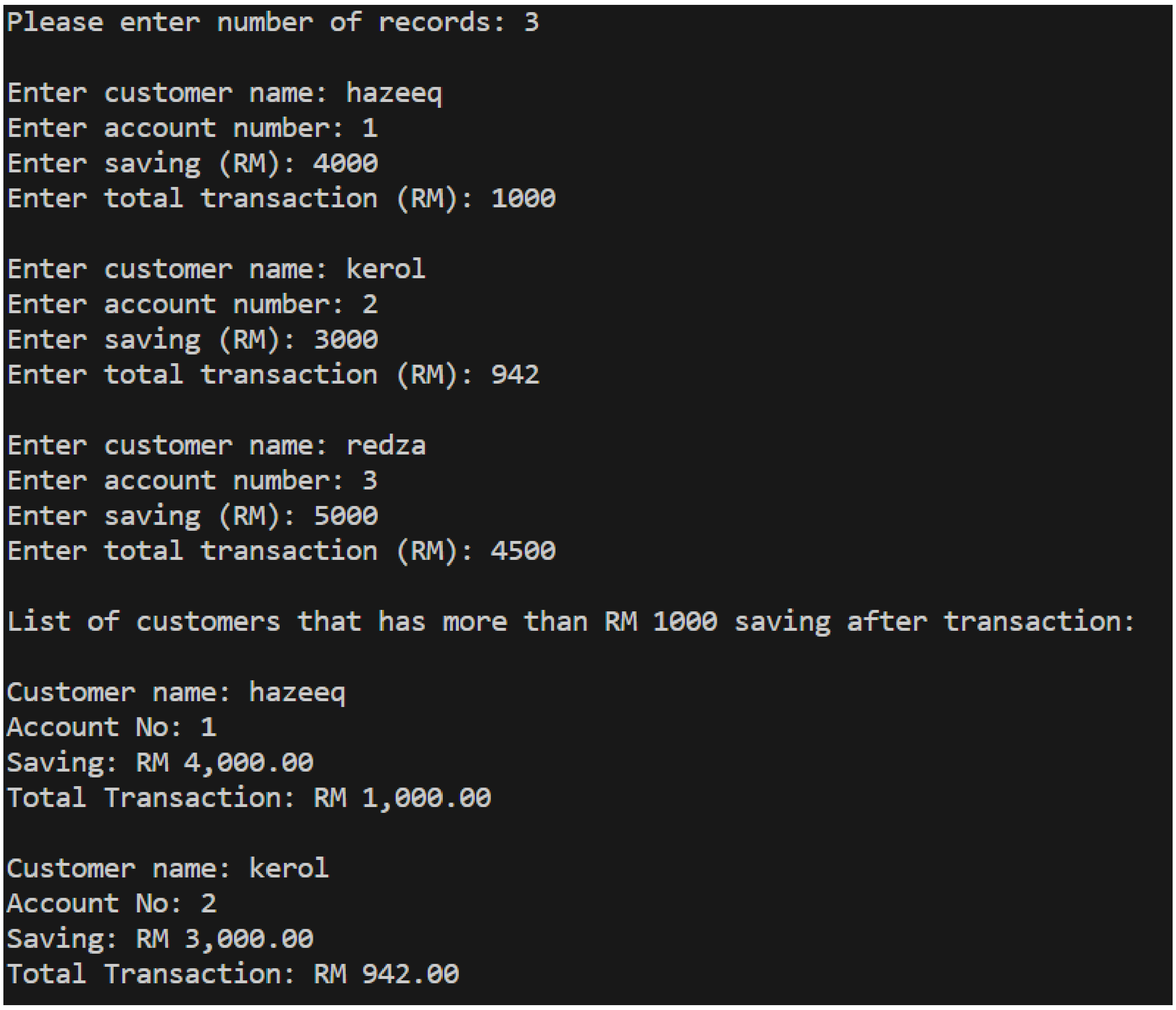


```
1. Semi-D
2. Terrace
Enter house type: 1
Enter location: kangar
Enter size (Metre): 300
Enter price per unit (RM): 450000

1. Semi-D
2. Terrace
Enter house type: 2
Enter location: kelantan
Enter size (Metre): 20000
Enter price per unit (RM): 3400

Houses with price less than RM 150,000.00:
House type: Terrace
Location: kelantan
Size (Metre): 20,000.00
Price: RM 3,400.00

Houses with price more than RM 300,000.00:
House type: Semi-D
Location: kangar
Size (Metre): 300.00
Price: RM 450,000.00

Number of houses with price more than RM 300,000.00: 1
```

Q2

```java
import java.util.Scanner;

public class Main {
    public static void main(String[] args) {
        Scanner strInput = new Scanner(System.in);
        Scanner intInput = new Scanner(System.in);

        QUEUE qCustomer = new QUEUE();

        QUEUE qQualify = new QUEUE();

        System.out.print("Please enter number of records: ");
        int rec = intInput.nextInt();

        System.out.println();

        for (int i = 0; i < rec; i++) {
            System.out.print("Enter customer name: ");
            String name = strInput.nextLine();

            System.out.print("Enter account number: ");
            int accountNo = intInput.nextInt();

            System.out.print("Enter saving (RM): ");
            double saving = intInput.nextDouble();

            System.out.print("Enter total transaction (RM): ");
            double totalTransaction = intInput.nextDouble();

            Customer customer = new Customer(name, accountNo, saving,
totalTransaction);

            qCustomer.enqueue(customer);
            if (customer.process()) {
                qQualify.enqueue(customer);
            }

            System.out.println();
        }

        System.out.println("List of customers that has more than RM 1000
saving after transaction:\n");

        while (!qQualify.isEmpty()) {
            System.out.println(qQualify.dequeue() + "\n");
        }
        intInput.close();
        strInput.close();

    }

}

class Customer {
    private String name;
    private int accountNo;
    private double saving;
    private double totalTransaction;

    public Customer(String name, int accountNo, double saving, double 
totalTransaction) {
        this.name = name;
        this.accountNo = accountNo;
        this.saving = saving;
        this.totalTransaction = totalTransaction;
    }

    public String getName() {
        return name;
    }

    public int getAccountNo() {
        return accountNo;
    }

    public double getSaving() {
        return saving;
    }

    public double getTotalTransaction() {
        return totalTransaction;
    }

    @Override
    public String toString() {
        return "Customer name: " + name + "\nAccount No: " + accountNo + 
"\nSaving: RM "
                + String.format("%,.2f", saving)
                + "\nTotal Transaction: RM " + String.format("%,.2f", 
totalTransaction);
    }

    public boolean process() {
        return saving - totalTransaction > 1000;
    }
}

class Node {
    Object data;
    Node link;

    public Node(Object elem) {
        this.data = elem;
        this.link = null;
    }

    public Node(Object elem, Node nextElem) {
        this.data = elem;
        this.link = nextElem;
    }

    public Object getData() {
        return data;
    }

    public Node getLink() {
        return link;
    }
}

class ListNode {
    Node first;
    Node last;

    public ListNode() {
        this.first = null;
        this.last = null;
    }
}

class QUEUE extends ListNode {
    public QUEUE() {
        super();
    }

    public void enqueue(Object elem) {
        Node newNode = new Node(elem);
        if (this.first == null) {
            this.first = newNode;
            this.last = newNode;
        } else {
            this.last.link = newNode;
            this.last = newNode;
        }
    }

    public Object dequeue() {
        if (this.first != null) {
            Object data = this.first.data;
            this.first = this.first.link;
            return data;
        }
        return null;
    }

    public boolean isEmpty() {
        return this.first == null;
    }

    public Object getFirst() {
        if (this.first != null) {
            return this.first.data;
        } else {
            return null;
        }
    }

    public Object getNext() {
        if (this.first != null && this.first.link != null) {
            return this.first.link.data;
        } else {
            return null;
        }
    }

    public Object getLast() {
        if (this.last != null) {
            return this.last.data;
        } else {
            return null;
        }
    }
}
```

Sample Input/Output



```
Please enter number of records: 3

Enter customer name: hazeeq
Enter account number: 1
Enter saving (RM): 4000
Enter total transaction (RM): 1000

Enter customer name: kerol
Enter account number: 2
Enter saving (RM): 3000
Enter total transaction (RM): 942

Enter customer name: redza
Enter account number: 3
Enter saving (RM): 5000
Enter total transaction (RM): 4500

List of customers that has more than RM 1000 saving after transaction:

Customer name: hazeeq
Account No: 1
Saving: RM 4,000.00
Total Transaction: RM 1,000.00

Customer name: kerol
Account No: 2
Saving: RM 3,000.00
Total Transaction: RM 942.00
```