**Home Work # 3**

**6.8** *(Parking Charges)* A parking garage charges a $2.00 minimum fee to park for up to three hours. The garage charges an additional $0.50 per hour for each hour *or part thereof* in excess of three hours. The maximum charge for any given 24-hour period is $10.00. Assume that no car parks for longer than 24 hours at a time. Write an application that calculates and displays the parking charges for each customer who parked in the garage yesterday. You should enter the hours parked for each customer. The program should display the charge for the current customer and should calculate and display the running total of yesterday’s receipts. It should use the method calculateCharges to determine the charge for each customer.

**Answer:**

Git Hub url : <https://github.com/madhavabhima/Advanced_Programming/blob/master/Assignment3/ParkingCharges.java>

Code:

**package** com.ctu.dietel.chapter6;

**import** java.util.Scanner;

**public** **class** ParkingCharges {

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

**double** totalReceipts = 0;

**double** charge;

**double** hours;

Scanner input = **new** Scanner(System.***in***); // user will enter number of hours parked

System.***out***.print("Enter number of hours parked(-1 to quit): ");

hours = input.nextDouble();

**while**(hours >= 0.0){

**if**(hours > 24.0){

System.***out***.println("We do not have facility to park more than 24 hours at a time. Please enter less than or equal to 24 hours");

System.***out***.print("Enter number of hours parked(-1 to quit): ");

hours = input.nextDouble();

}**else**{

charge = *calculateCharges*(hours);

totalReceipts = totalReceipts+charge;

System.***out***.printf("Current Charge: $%.2f", charge);

System.***out***.printf(" Total Reciepts: $%.2f\n", totalReceipts);

System.***out***.print("Enter number of hours parked(-1 to quit): ");

hours = input.nextDouble();

}

}

}

**public** **static** **double** calculateCharges(**double** hours) {

**double** charge = 2.0; // minimum charge for 3 hours has $2.00

**if** (hours > 3.0){

charge = 2.0 + 0.5 \* Math.*ceil*(hours - 3.0); // calculate extra charge if it was parked more than 3 hours

}

**if** (hours >= 19.0 && hours <= 24.0){

charge = 10.0; // if hours is equal or greater than 19 and less than or equal to 24 then maximum charge will be $10

}

**return** charge;

}

}

**6.12** Write statements that assign random integers to the variable *n* in the following ranges:

a) 1 <= *n* <= 2.

b) 1 <= *n* <= 100.

c) 0 <= *n* <= 9.

d) 1000 <=*n* <= 1112.

e) –1 <=*n* <= 1.

f) –3 <=*n* <= 11.

**Answers:**

**a) 1 <= *n* <= 2.**

n = 1 + randomNumbers.nextInt(2);

**Code:**

**package** com.ctu.dietel.chapter6;

**import** java.util.Random;

**public** **class** Test {

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

**int** n;

Random randomNumbers = **new** Random();

**for** (**int** counter = 1; counter <= 20; counter++) {

// pick random integer from 1 to 2

n = 1 + randomNumbers.nextInt(2);

System.***out***.printf("%d ", n); // display generated value

// if counter is divisible by 5, start a new line of output

**if** (counter % 5 == 0)

System.***out***.println();

} // end for

}

}

Output:

2 2 1 2 1

2 1 2 1 2

2 1 2 2 1

2 1 1 2 1

**b) 1 <= *n* <= 100.**

n = 1 + randomNumbers.nextInt(100);

Code:

**package** com.ctu.dietel.chapter6;

**import** java.util.Random;

**public** **class** Test {

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

**int** n;

Random randomNumbers = **new** Random();

**for** (**int** counter = 1; counter <= 20; counter++) {

// pick random integer from 1 to 100

n = 1 + randomNumbers.nextInt(100);

System.***out***.printf("%d ", n); // display generated value

// if counter is divisible by 5, start a new line of output

**if** (counter % 5 == 0)

System.***out***.println();

} // end for

}

}

Output:

1 22 85 55 79

88 85 11 94 17

66 3 39 38 99

84 21 90 83 94

**c) 0 <= *n* <= 9.**

n = randomNumbers.nextInt(10);

Code:

**package** com.ctu.dietel.chapter6;

**import** java.util.Random;

**public** **class** Test {

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

**int** n;

Random randomNumbers = **new** Random();

**for** (**int** counter = 1; counter <= 20; counter++) {

// pick random integer from 0 to 9

n = randomNumbers.nextInt(10);

System.***out***.printf("%d ", n); // display generated value

// if counter is divisible by 5, start a new line of output

**if** (counter % 5 == 0)

System.***out***.println();

} // end for

}

}

Output:

2 9 4 4 8

3 0 8 5 2

4 6 3 4 1

9 2 7 1 4

**d) 1000 <=*n* <= 1112.**

n = 1000+randomNumbers.nextInt(113);

**Code:**

**package** com.ctu.dietel.chapter6;

**import** java.util.Random;

**public** **class** Test {

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

**int** n;

Random randomNumbers = **new** Random();

**for** (**int** counter = 1; counter <= 20; counter++) {

// pick random integer from 1000 to 1112

n = 1000+randomNumbers.nextInt(113);

System.***out***.printf("%d ", n); // display generated value

// if counter is divisible by 5, start a new line of output

**if** (counter % 5 == 0)

System.***out***.println();

} // end for

}

}

Output:

1027 1007 1038 1022 1086

1068 1004 1037 1045 1024

1101 1107 1007 1086 1108

1083 1031 1028 1063 1064

**e) –1 <=*n* <= 1.**

n = -1+randomNumbers.nextInt(3);

**Code:**

**package** com.ctu.dietel.chapter6;

**import** java.util.Random;

**public** **class** Test {

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

**int** n;

Random randomNumbers = **new** Random();

**for** (**int** counter = 1; counter <= 20; counter++) {

// pick random integer from -1 to 1

n = -1+randomNumbers.nextInt(3);

System.***out***.printf("%d ", n); // display generated value

// if counter is divisible by 5, start a new line of output

**if** (counter % 5 == 0)

System.***out***.println();

} // end for

}

}

Output:

-1 -1 -1 0 -1

-1 1 0 -1 -1

1 -1 -1 0 -1

1 1 1 -1 1

**f) –3 <=*n* <= 11.**

n = -3+randomNumbers.nextInt(15);

**Code:**

**package** com.ctu.dietel.chapter6;

**import** java.util.Random;

**public** **class** Test {

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

**int** n;

Random randomNumbers = **new** Random();

**for** (**int** counter = 1; counter <= 20; counter++) {

// pick random integer from -3 to 11

n = -3+randomNumbers.nextInt(15);

System.***out***.printf("%d ", n); // display generated value

// if counter is divisible by 5, start a new line of output

**if** (counter % 5 == 0)

System.***out***.println();

} // end for

}

}

Output:

6 2 4 8 4

0 -3 5 6 6

1 7 8 -1 9

11 8 -3 1 -2