```java
 1    /* Test 2 Question 1  */
 2    package t2q1f16;
 3    import java.io.File;
 4    import java.io.FileNotFoundException;
 5    import java.util.Scanner;
 6    public class T2Q1F16
 7    {
 8        public static void main(String[] args)
 9        {   // Cost of dinner for multiple people at a restaurant
10            // Max of 8 diners
11            // Each diner could have a drink, an appetizer, a main dish, and a dessert
12            // Data is read in from a file :  first line is number of diners, taxrate, tip percent
13            // Every line after first:  diner_number, cost, item_category, item name
14            // Item categories are single words: "drink", "appetizer", "entree", "dessert"
15            System.out.println("This system calculates the cost of a group meal");
16            double drink1, drink2, drink3, drink4,
17                    drink5, drink6, drink7, drink8;
18            double appetizer1, appetizer2, appetizer3, appetizer4,
19                    appetizer5, appetizer6, appetizer7, appetizer8;
20            double entree1, entree2, entree3, entree4,
21                    entree5, entree6, entree7, entree8;
22            double dessert1, dessert2, dessert3, dessert4,
23                    dessert5, dessert6, dessert7, dessert8;
24            double diner1, diner2, diner3, diner4,
25                    diner5, diner6, diner7, diner8;
26
27            int drinkCount, appetizerCount, entreeCount, dessertCount;
28            double drinkCost, appetizerCost, entreeCost, dessertCost;
29            boolean billAvailable = true;
30            double pretaxBill = 0;
31            double taxRate = 8.25;
32            double tipPercent = 18;
33            double totalBill = 0;
34            int party = 1;
35            int diner = 0;
36            double cost = 0;
37            String itemCat = "";
38            String itemName = "";
39            File bill = new File("restaurantBill.txt");
40            Scanner billFile;
41            try
42            {   billFile = new Scanner(bill);
43            }
44            catch (FileNotFoundException fnf)
45            {   billFile = new Scanner(System.in);
46                System.out.println("No input file found ");
47                billAvailable = false;
48            }
49            System.out.println();
50        // ===
51            drinkCount = appetizerCount = entreeCount = dessertCount = 0;
52            drinkCost = appetizerCost = entreeCost = dessertCost = 0.0;
53            diner1 = diner2 = diner3 = diner4 =
54                    diner5 = diner6 = diner7 = diner8 = 0;
55
56            if (billAvailable && billFile.hasNextInt())
57            {   // read first line of file to get number of diners
58              party = billFile.nextInt();
59              taxRate = billFile.nextDouble();
60              tipPercent = billFile.nextDouble();
61              billFile.nextLine();
62
63              while (billFile.hasNextInt())
64              { //diner_number, cost, item_category, item name
65                diner = billFile.nextInt();
66                cost = billFile.nextDouble();
67                itemCat = billFile.next();
68                itemName = billFile.nextLine();
69
70               // *** Write code to save the costs for the
71                  // four dinner items for Diner 1 from the file into the
72                  //  variables drink1, dessert1, entree1, and appetizer1
73
```

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 74                     System.out.println("Diner "+diner+" enjoyed"+itemName
 75                             +" as their "+itemCat);
 76                     pretaxBill += cost;
 77
 78                     if (itemCat.equalsIgnoreCase("drink"))
 79                     {   drinkCount++;
 80                         drinkCost += cost;   }
 81                     else if (itemCat.equalsIgnoreCase("appetizer"))
 82                     {   appetizerCount++;
 83                         appetizerCost += cost;    }
 84                     else if (itemCat.equalsIgnoreCase("entree"))
 85                     {   entreeCount++;
 86                         entreeCost += cost;    }
 87                     else if (itemCat.equalsIgnoreCase("dessert"))
 88                     {   dessertCount++;
 89                         dessertCost += cost;     }
 90
 91                     switch (diner)
 92                     {   case 1: diner1 += cost;  break;
 93                         case 2: diner2 += cost;  break;
 94                         case 3: diner3 += cost;  break;
 95                         case 4: diner4 += cost;  break;
 96                         case 5: diner5 += cost;  break;
 97                         case 6: diner6 += cost;  break;
 98                         case 7: diner7 += cost;  break;
 99                         case 8: diner8 += cost;  break;
100                     }
101                 }
102                 System.out.println();
103         // ---
104                 System.out.printf("The cost of the dinner before tax is $%8.2f\n",pretaxBill);
105                 System.out.print("The tax rate is "+taxRate+"%");
106                 System.out.println(" and the tip percent is "+tipPercent+"%");
107                 totalBill = pretaxBill + calcPct(taxRate,pretaxBill)+calcPct(tipPercent,pretaxBill);
108                 System.out.printf("The cost of the dinner with tax and tip is $%8.2f\n",totalBill);
109         // ---
110                 System.out.println();
111                 printCat(drinkCount,"drink",drinkCost);
112                 printCat(appetizerCount,"appetizer",appetizerCost);
113                 printCat(entreeCount,"entree",entreeCost);
114                 printCat(dessertCount,"dessert",dessertCost);
115             }
116             System.out.println();
117             System.out.printf("Total Bill : $%8.2f\n",totalBill);
118             System.out.printf("Avg $/person for party of %d is $%8.2f\n",party,totalBill/party);
119     // ^^^
120             if (diner1 > 0) printDinerCost(1, diner1 * (1+taxRate*.01+tipPercent*.01) );
121             if (diner2 > 0) printDinerCost(2, diner2 * (1+taxRate*.01+tipPercent*.01) );
122             if (diner3 > 0) printDinerCost(3, diner3 * (1+taxRate*.01+tipPercent*.01) );
123             if (diner4 > 0) printDinerCost(4, diner4 * (1+taxRate*.01+tipPercent*.01) );
124             if (diner5 > 0) printDinerCost(5, diner5 * (1+taxRate*.01+tipPercent*.01) );
125             if (diner6 > 0) printDinerCost(6, diner6 * (1+taxRate*.01+tipPercent*.01) );
126             if (diner7 > 0) printDinerCost(7, diner7 * (1+taxRate*.01+tipPercent*.01) );
127             if (diner8 > 0) printDinerCost(8, diner8 * (1+taxRate*.01+tipPercent*.01) );
128         }
129         public static void printCat(int count, String cat, double cost)
130         {
131             System.out.printf("%d people had %ss at a cost of $%8.2f\n",count,cat,cost);
132         }
133         public static void printDinerCost(int count, double cost)
134         {
135             System.out.printf("Diner %d had a meal with the cost of $%8.2f\n",count,cost);
136         }
137         public static double calcPct(double percentageRate, double bill)
138         {
139             // +++  Replace body of the method with the correct calculation to return
140             //       the percentageRate of the bill instead of 0
141             return 0;
142         }
143     }
```