Problem Set – While Loops. Develop IPO for each of the problems below and then save within this document. Then Write the code files using C++. Upload both IPO and .CPP files to Blackboard.

1. Allow any number of users to enter a quantity and price at the keyboard (use ctl+z to stop). Compute the extended price (quantity times price). If quantity is over 1000 give a 10% discount. Display quantity, price and extended, discount amount and discounted price for each entry. Keep a sum of the total for all the discounted prices. Display the total of discounted prices after all entries have been entered.

INPUT	PROCESS	OUTPUT
Quantity	Quantity × Price = Extended Price	Quantity
price	If quantity > 1000, apply 10% discount	price
	Extended Price − Discount = Discounted Price	Extended Price
		Discount Amount
		Discounted Price
		Total of all discounted prices

2. Allow any number of players to enter last name, number of hits and at bats at the keyboard (use ctl+z to stop). Compute batting average (hits/ at bats). Display last name and batting average for each player. Keep a count of the number of players (or entries) made. Display the count after all entries have been made.

INPUT	PROCESS	OUTPUT
Last name	Number of Hits / number of Bats = Batting Average	Last Name, Batting Average
Number of hits	Count number of players	t otal number of players
Number of bats		

3. Enter destination city, miles travelled to get there and gallons of gasoline used for any number of trips entered at the keyboard (use ctl+z to stop). Compute miles per gallon (miles travelled / gallons used). Display the destination city and miles per gallon for each trip entered. Sum the miles travelled and give a count of the number of trips made. Display these at the end of the program.

Input	Process	output
Destination City	Miles / Gallons = Miles Per Gallon	Destination City, Miles Per Gallon
Miles Traveled	Add all miles traveled for total	Total miles traveled
Gallons Used	Count number of trips	Number of trips

4. Allow the employee to enter last name, job code and hours worked (use ctl+z to stop). Calculate pay. (Job code L is $25/hr, A is $30/hr and J is $50/hr). Give time and a half for overtime. Display last name, job code, hours worked and pay for each employee. Sum the pay for each employee as well as count the entries made. After all entries are made, compute and display the average pay and the number of entries made.

Input	Process	output
Last Name	Determine pay rate by job code	Last Name, Job Code, Hours Worked, Pay
Job Code (L, A, J)	if hours > 40, give time and a half	Average Pay
Hours Worked	Hours × Rate = Pay	Number of Employees
	Add all pay for total and count employees	

5. Allow the user to enter student last name, credit hours and district code for any number of students (use ctl+z to stop). Compute tuition owed. In district (code of I) is charged $250 per credit hour. Out of district (code of O) is $550 per credit hour. Display student name and tuition owed for each entry. Sum the amount of tuition owed for all students as well and the total credit hours taken and finally the number of students who entered data. Display total tuition, total credit hours taken and count of number of students at the end.

Input	Process	output
Last Name	If code = I, rate = 250	Last name, tuition owed
Credit Hours	If code = O, rate = 550	Total tuition
District Code (I or O)	Credit Hours × Rate = Tuition	Total credit hours
	Add all tuition and credit hours for totals	Number of students