# CS410 INTRODUCTION TO COMP SCI APPLIC

Assignment 9 – Loops

Write two separate programs. Use any type of loops.

1. A certain company sells 5 products with following codes and prices:

| Item Code | Price |
|-----------|-------|
| AXA3 | 3.16 |
| DPA5 | 22.15 |
| ESS7 | 7.52 |
| QXK7 | 8.99 |
| PLP8 | 18.23 |

Write a program, **Orders**, that reads a series of sales as pairs of inputs – item code and quantity sold. Your program will calculate the number and price of each item and then print the results and the total price. Your program should reject orders which have an incorrect item code or a nonpositive quantity. Program will only end when user enters the pair ZZZZ 0 which may be the very first data entered.
Sample run:

```
Please enter the product code and quantity: DPA5 4
Please enter the product code and quantity: PLP8 15
Please enter the product code and quantity: AXA2 34
Error.  Re-enter product code and quantity: AXA3 34
Please enter the product code and quantity: DPA5 5
Please enter the product code and quantity: ESS7 -3
Error.  Re-enter product code and quantity: ESS7 3
Please enter the product code and quantity: ZZZZ 5
Error.  Re-enter product code and quantity: ESS7 0
Error.  Re-enter product code and quantity: ZZZZ 0

AXA3: 34 items   Price = Price Here
DPA5: 9 items    Price = Price Here
ESS7: 3 items    Price = Price Here
QXK7: 0 items    Price = Price Here
PLP8: 15 items   Price = Price Here
Total Price: Price Here
```

2. Write a program, **CalcPi**, that will calculate $\pi$ using a certain number of terms in the infinite series

$$\pi = 8\left(\frac{1}{1*3} + \frac{1}{5*7} + \frac{1}{9*11} + \frac{1}{13*15} + \cdots \frac{1}{(4k-3)(4k-1)} + \cdots.\right)$$

Your program should ask for the number of terms to use in the calculation and then display the answer. Do not round the answer.

**Test Data (Orders)**
Enter (one run of the program)

| | |
|------|-----|
| ESS7 | 35 |
| AXA3 | 11 |
| PLL8 | 3 |
| PLP8 | -3 |
| PLP8 | 13 |
| QXK7 | 21 |
| ESS7 | 23 |
| ZZZZ | 4 |
| ZZZZ | -2 |
| AXA3 | 51 |
| ZZZZ | 0 |

**Test Data (CalcPi)**
Enter 100 and 200000 (two runs of the program)

**Turning in the Assignment**
Take screenshots for all output. Upload screenshots and java and class files using the TWO links in Canvas (one for each part). **Due Date: start of class on 3/24**