***Father’s Portfolio***

Suppose, your father has asked you to manage his investment portfolio. So, he has provided you with a long csv (comma separated values) file detailing his stocks, mutual funds, duration and the profit (sometimes loss!) he made during that duration.

Being a CSE student, you think awk can interpret this file quite efficiently. So, you have a file named invest.csv with the following contents:

Entity,Duration,Principal,Type,CompoundRate

Reliance,5 years,100,stocks,3

NipponIndia,3 years,1000,mutual funds,2

Veritas,7 years,200,stocks,4

…  
  
Now, you need to complete the following tasks using awk:

1. First, you need to calculate the compounded amount after the duration. You need to write your code in compound.awk. This file will be run on invest.csv and will produce result.csv. The compound.awk should add another column “Amount” (with all other columns as it is), where each entry is calculated as (Principal)*(CompoundRate)(Duration). For example in the first case, “Amount” Column will contain 100*\*3\*3\*3\*3\*3 = 24300. (Does money multiply that fast??)
2. Now, your father also wants to know how much money he has invested in different types and its percentage over the total amount. You need to write your code in stat.awk which will run on result.csv (which you have modified just above). So, just sum over all the amounts in the “Amount” column, this will give you the total money. Similarly, do this for all types such as mutual funds, gold, stocks and so on. Calculate the percentage of each type vs the total amount. Truncate it to make it an integer (the sum of all the percentages might not be 100 anymore). You need to print the percentage of each type in decreasing order. The output should be stored in final.csv.

Lots of stuff to do? Let’s take an example to understand better:

Suppose invest.csv file initially contains:

Entity,Duration,Principal,Type,CompoundRate

Reliance,2 years,100,stocks,3

NipponIndia,3 years,1000,mutual funds,2

Veritas,2 years,200,stocks,4

Now, we will run “awk -f compound.awk invest.csv > result.csv”. result.csv will contain:

Entity,Duration,Principal,Type,CompoundRate,Amount

Reliance,2 years,100,stocks,3,900

NipponIndia,3 years,1000,mutual funds,2,8000

Veritas,2 years,200,stocks,4,3200

Now, we will run “awk -f stat.awk result.csv > final.csv”. final.csv will contain:

Total:12100

mutual funds:66

stocks:33

(See, in final.csv the values are separated by colons instead of commas.)

Hint: You can use type casting for doing truncation.

Also, please note that we will be having our own server side test cases. So, make sure you test your script thoroughly with your own test cases.

You need to submit only compound.awk and stat.awk