

#### Exercise 4 (10 points) - can be done individually or in pair

- The first lines of all source files must be comment containing names & IDs of all members. Also create file readme.txt containing names & IDs of all members.
- Put all files (source, input, output) in folder **Ex4\_xxx** where **xxx = your full ID**. That is, your source files must be in package **Ex4\_xxx** and input/output files (if there is any) must be read from/write to this folder. From now on, you'll get point deduction for wrong package & folder structure.
- The group representative zips **Ex4\_xxx** & submits it to Google Classroom. The other members submit only readme.txt. Email submission is not accepted.
- The exercise is graded only once, and after graded, members can't be added.

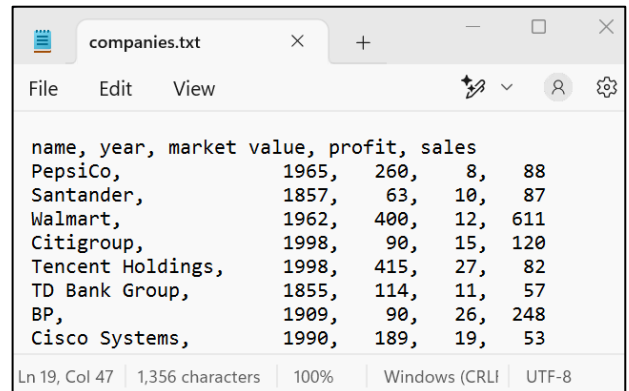
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Keep your source code for Exercise 5.

1. Copy class Company to your source file. Complete this class to make it concrete. Add variables & methods as needed, but don't change the visibility of the given members.

```
class Company implements Comparable<Company> {
    private String name;
    private int    year, marketValue, profit, sales;

    public int compareTo(Company other) {
        // add your code (see 2.3-2.6)
    }
}
```



name	year	market value	profit	sales
PepsiCo,	1965,	260,	8,	88
Santander,	1857,	63,	10,	87
Walmart,	1962,	400,	12,	611
Citigroup,	1998,	90,	15,	120
Tencent Holdings,	1998,	415,	27,	82
TD Bank Group,	1855,	114,	11,	57
BP,	1909,	90,	26,	248
Cisco Systems,	1990,	189,	19,	53

2. Write another class that acts as the main class.

2.1 Create an ArrayList of Company. Read each line of input file in to a Company object and add this object to the ArrayList.

- Col 0 = company name
- Col 1 = established year of the current organization
- Col 2 = market value (billion USD)
- Col 3 = profit (billion USD)
- Col 4 = sales (billion USD)

The first line contains column name. **Don't remove this line from input file**, but make your program skip it.

- 2.2 Read year threshold from user. Select only companies whose established years are equal to or after the threshold. Among the selected companies, sort them according to conditions in 2.3-2.6.
- 2.3 Sort selected companies in decreasing order of market values.
- 2.4 If market values are equal, sort them in decreasing order of profit.
- 2.5 If market value and profit are equal, sort them in decreasing order of sales.
- 2.6 If market value, profit, and sales are all equal, sort them by alphabetical order.
- 2.7 Print the selected & sorted companies in proper format & alignment - you'll get point deduction for messy output. Then repeat 2.2-2.7, i.e. keep doing this for new year threshold.

**Note** - Class String in Java already implements compareTo and compareToIgnoreCase

```
String s1 = "Apple";
String s2 = "Alibaba";
int x1 = s1.compareToIgnoreCase(s2);    //x1 = 4    i.e. Apple comes later (p - l = 4)
int x2 = s2.compareToIgnoreCase(s1);    //x2 = -4    i.e. Alibaba comes first (l - p = -4)
```

Enter year threshold =				
1000				
Company established since 1000		Market Value(\$Bn.)	Profit(\$Bn.)	Sales(\$Bn.)
=====				
Apple	(1976)	2,750	94	385
Microsoft	(1975)	2,310	69	208
Saudi Aramco	(1933)	2,050	156	661
Tesla	(2003)	539	12	86
Exxon Mobile	(1999)	439	62	393
Tencent Holdings	(1998)	415	27	82
JPMorgan Chase	(2000)	400	42	180
Walmart	(1962)	400	12	611
Samsung Electronics	(1938)	334	35	220
Broadcom	(1991)	260	13	43
PepsiCo	(1965)	260	8	88
Oracle	(1984)	260	8	48
Pfizer	(1849)	216	29	93
Alibaba Group	(1999)	216	4	128
China Mobile	(1997)	189	19	251
Toyota Motor	(1986)	189	19	251
Cisco Systems	(1990)	189	19	53
Sinopec	(2000)	114	11	453
TD Bank Group	(1855)	114	11	57
Deutsche Telekom	(1995)	114	9	121
American Express	(1850)	114	7	68
Sony	(1946)	114	7	68
Equinor	(1972)	90	29	142
BP	(1909)	90	26	248
Citigroup	(1998)	90	15	120
Santander	(1857)	63	10	87
Bank of Nova Scotia	(1832)	63	8	56
State Bank of India	(1955)	63	8	56
Enter y or Y to continue, else to quit =				
y				
Enter year threshold =				
1990				
Company established since 1990		Market Value(\$Bn.)	Profit(\$Bn.)	Sales(\$Bn.)
=====				
Tesla	(2003)	539	12	86
Exxon Mobile	(1999)	439	62	393
Tencent Holdings	(1998)	415	27	82
JPMorgan Chase	(2000)	400	42	180
Broadcom	(1991)	260	13	43
Alibaba Group	(1999)	216	4	128
China Mobile	(1997)	189	19	251
Cisco Systems	(1990)	189	19	53
Sinopec	(2000)	114	11	453
Deutsche Telekom	(1995)	114	9	121
Citigroup	(1998)	90	15	120
Enter y or Y to continue, else to quit =				
n				
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BUILD SUCCESS				
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