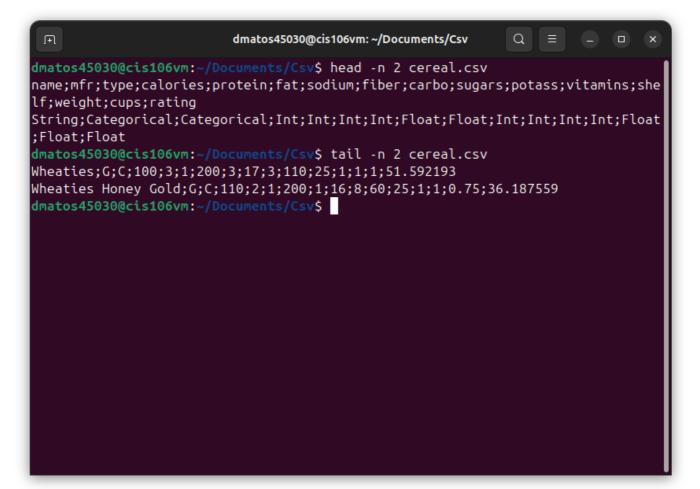# Lab 7
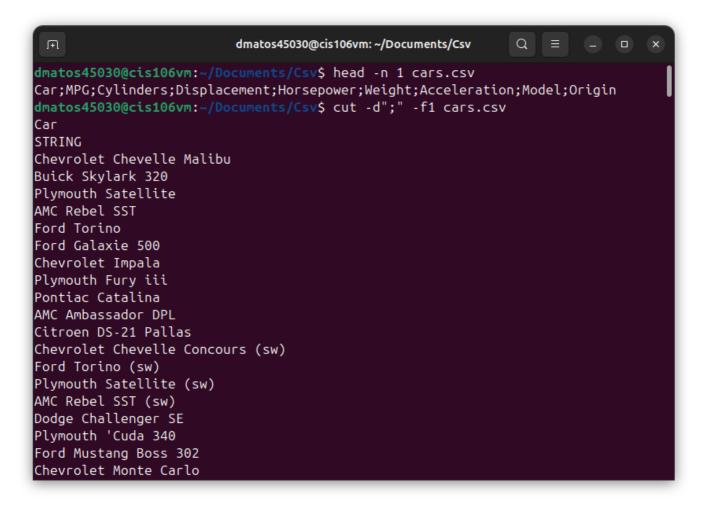
Question 1
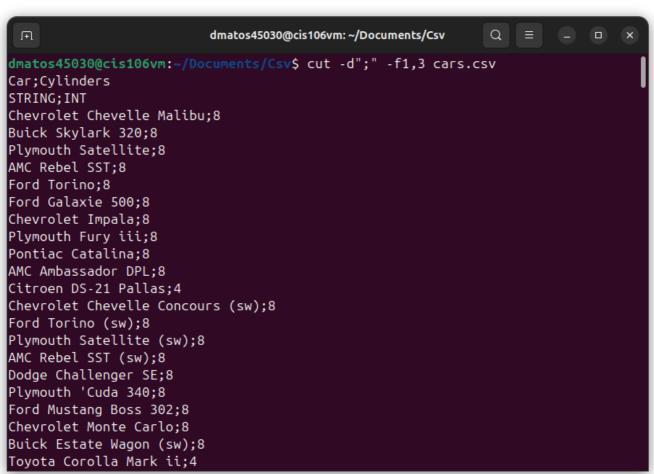
```
bash: cd: Csv/: No such file or directory
dmatos45030@cis106vm:~/Documents$ cd Csv/
dmatos45030@cis106vm:~/Documents/Csv$ ls
cars.csv  cereal.csv  contacts.csv  country.csv  film.csv
dmatos45030@cis106vm:~/Documents/Csv$ cat cereal.csv
name;mfr;type;calories;protein;fat;sodium;fiber;carbo;sugars;potass;vitamins;she
lf;weight;cups;rating
String;Categorical;Categorical;Int;Int;Int;Int;Float;Float;Int;Int;Int;Int;Float
;Float;Float
100% Bran;N;C;70;4;1;130;10;5;6;280;25;3;1;0.33;68.402973
100% Natural Bran;Q;C;120;3;5;15;2;8;8;135;0;3;1;1;33.983679
All-Bran;K;C;70;4;1;260;9;7;5;320;25;3;1;0.33;59.425505
All-Bran with Extra Fiber;K;C;50;4;0;140;14;8;0;330;25;3;1;0.5;93.704912
```

```
dmatos45030@cis106vm:~/Documents/Csv$ tac cereal.csv
Wheaties Honey Gold;G;C;110;2;1;200;1;16;8;60;25;1;1;0.75;36.187559
Wheaties;G;C;100;3;1;200;3;17;3;110;25;1;1;1;51.592193
Wheat Chex;R;C;100;3;1;230;3;17;3;115;25;1;1;0.67;49.787445
Trix;G;C;110;1;1;140;0;13;12;25;25;2;1;1;27.753301
Triples;G;C;110;2;1;250;0;21;3;60;25;3;1;0.75;39.106174
Total Whole Grain;G;C;100;3;1;200;3;16;3;110;100;3;1;1;46.658844
Total Raisin Bran;G;C;140;3;1;190;4;15;14;230;100;3;1.5;1;28.592785
Total Corn Flakes;G;C;110;2;1;200;0;21;3;35;100;3;1;1;38.839746
Strawberry Fruit Wheats;N;C;90;2;0;15;3;15;5;90;25;2;1;1;59.363993
Special K;K;C;110;6;0;230;1;16;3;55;25;1;1;1;53.131324
Smacks;K;C;110;2;1;70;1;9;15;40;25;2;1;0.75;31.230054
Shredded Wheat spoon size;N;C;90;3;0;0;3;20;0;120;0;1;1;0.67;72.801787
Shredded Wheat 'n'Bran;N;C;90;3;0;0;4;19;0;140;0;1;1;0.67;74.472949
Shredded Wheat;N;C;80;2;0;0;3;16;0;95;0;1;0.83;1;68.235885
Rice Krispies;K;C;110;2;0;290;0;22;3;35;25;1;1;1;40.560159
```

```
dmatos45030@cis106vm:~/Documents/Csv$ cat -nEv cereal.csv
     1  name;mfr;type;calories;protein;fat;sodium;fiber;carbo;sugars;potass;vita
mins;shelf;weight;cups;rating^M$
     2  String;Categorical;Categorical;Int;Int;Int;Int;Float;Float;Int;Int;Int;I
nt;Float;Float;Float^M$
     3  100% Bran;N;C;70;4;1;130;10;5;6;280;25;3;1;0.33;68.402973^M$
     4  100% Natural Bran;Q;C;120;3;5;15;2;8;8;135;0;3;1;1;33.983679^M$
     5  All-Bran;K;C;70;4;1;260;9;7;5;320;25;3;1;0.33;59.425505^M$
     6  All-Bran with Extra Fiber;K;C;50;4;0;140;14;8;0;330;25;3;1;0.5;93.704912
^M$
     7  Almond Delight;R;C;110;2;2;200;1;14;8;-1;25;3;1;0.75;34.384843^M$
     8  Apple Cinnamon Cheerios;G;C;110;2;2;180;1.5;10.5;10;70;25;1;1;0.75;29.50
9541^M$
     9  Apple Jacks;K;C;110;2;0;125;1;11;14;30;25;2;1;1;33.174094^M$
    10  Basic 4;G;C;130;3;2;210;2;18;8;100;25;3;1.33;0.75;37.038562^M$
```

```
dmatos45030@cis106vm: ~/Documents/Csv

dmatos45030@cis106vm:~/Documents/Csv$ head -n 2 cereal.csv
name;mfr;type;calories;protein;fat;sodium;fiber;carbo;sugars;potass;vitamins;she
lf;weight;cups;rating
String;Categorical;Categorical;Int;Int;Int;Int;Float;Float;Int;Int;Int;Int;Float
;Float;Float
dmatos45030@cis106vm:~/Documents/Csv$ tail -n 2 cereal.csv
Wheaties;G;C;100;3;1;200;3;17;3;110;25;1;1;1;51.592193
Wheaties Honey Gold;G;C;110;2;1;200;1;16;8;60;25;1;1;0.75;36.187559
dmatos45030@cis106vm:~/Documents/Csv$
```

Question 2

```
dmatos45030@cis106vm:~/Documents/Csv$ head -n 1 cars.csv
Car;MPG;Cylinders;Displacement;Horsepower;Weight;Acceleration;Model;Origin
dmatos45030@cis106vm:~/Documents/Csv$ cut -d";" -f1 cars.csv
Car
STRING
Chevrolet Chevelle Malibu
Buick Skylark 320
Plymouth Satellite
AMC Rebel SST
Ford Torino
Ford Galaxie 500
Chevrolet Impala
Plymouth Fury iii
Pontiac Catalina
AMC Ambassador DPL
Citroen DS-21 Pallas
Chevrolet Chevelle Concours (sw)
Ford Torino (sw)
Plymouth Satellite (sw)
AMC Rebel SST (sw)
Dodge Challenger SE
Plymouth 'Cuda 340
Ford Mustang Boss 302
Chevrolet Monte Carlo
```

```
dmatos45030@cis106vm:~/Documents/Csv$ cut -d";" -f1,3 cars.csv
Car;Cylinders
STRING;INT
Chevrolet Chevelle Malibu;8
Buick Skylark 320;8
Plymouth Satellite;8
AMC Rebel SST;8
Ford Torino;8
Ford Galaxie 500;8
Chevrolet Impala;8
Plymouth Fury iii;8
Pontiac Catalina;8
AMC Ambassador DPL;8
Citroen DS-21 Pallas;4
Chevrolet Chevelle Concours (sw);8
Ford Torino (sw);8
Plymouth Satellite (sw);8
AMC Rebel SST (sw);8
Dodge Challenger SE;8
Plymouth 'Cuda 340;8
Ford Mustang Boss 302;8
Chevrolet Monte Carlo;8
Buick Estate Wagon (sw);8
Toyota Corolla Mark ii;4
```

```
dmatos45030@cis106vm:~/Documents/Csv$ cut -d";" -f1,3 cars.csv --output-delimiter=" = "
Car = Cylinders
STRING = INT
Chevrolet Chevelle Malibu = 8
Buick Skylark 320 = 8
Plymouth Satellite = 8
AMC Rebel SST = 8
Ford Torino = 8
Ford Galaxie 500 = 8
Chevrolet Impala = 8
Plymouth Fury iii = 8
Pontiac Catalina = 8
AMC Ambassador DPL = 8
Citroen DS-21 Pallas = 4
Chevrolet Chevelle Concours (sw) = 8
Ford Torino (sw) = 8
Plymouth Satellite (sw) = 8
AMC Rebel SST (sw) = 8
Dodge Challenger SE = 8
Plymouth 'Cuda 340 = 8
Ford Mustang Boss 302 = 8
Chevrolet Monte Carlo = 8
Buick Estate Wagon (sw) = 8
```

```
dmatos45030@cis106vm:~/Documents/Csv$ sort cars.csv
AMC Ambassador Brougham;13.0;8;360.0;175.0;3821.;11.0;73;US
AMC Ambassador DPL;15.0;8;390.0;190.0;3850.;8.5;70;US
AMC Ambassador SST;17.0;8;304.0;150.0;3672.;11.5;72;US
AMC Concord;19.4;6;232.0;90.00;3210.;17.2;78;US
AMC Concord;24.3;4;151.0;90.00;3003.;20.1;80;US
AMC Concord d/l;18.1;6;258.0;120.0;3410.;15.1;78;US
AMC Concord DL;23.0;4;151.0;0;3035.;20.5;82;US
AMC Concord DL 6;20.2;6;232.0;90.00;3265.;18.2;79;US
AMC Gremlin;18.0;6;232.0;100.0;2789.;15.0;73;US
AMC Gremlin;19.0;6;232.0;100.0;2634.;13.0;71;US
AMC Gremlin;20.0;6;232.0;100.0;2914.;16.0;75;US
AMC Gremlin;21.0;6;199.0;90.00;2648.;15.0;70;US
AMC Hornet;18.0;6;199.0;97.00;2774.;15.5;70;US
AMC Hornet;18.0;6;232.0;100.0;2945.;16.0;73;US
AMC Hornet;19.0;6;232.0;100.0;2901.;16.0;74;US
AMC Hornet;22.5;6;232.0;90.00;3085.;17.6;76;US
AMC Hornet Sportabout (sw);18.0;6;258.0;110.0;2962.;13.5;71;US
AMC Matador;14.0;8;304.0;150.0;3672.;11.5;73;US
AMC Matador;15.0;6;258.0;110.0;3730.;19.0;75;US
AMC Matador;15.5;8;304.0;120.0;3962.;13.9;76;US
AMC Matador;16.0;6;258.0;110.0;3632.;18.0;74;US
AMC Matador;18.0;6;232.0;100.0;3288.;15.5;71;US
AMC Matador (sw);14.0;8;304.0;150.0;4257.;15.5;74;US
```

/

```
dmatos45030@cis106vm: ~/Documents/Csv                    🔍  ☰  —  ▢  ✕

dmatos45030@cis106vm:~/Documents/Csv$ sort -t";" -k4 cereal.csv
Double Chex;R;C;100;2;0;190;1;18;5;80;25;3;1;0.75;44.330856
Corn Flakes;K;C;100;2;0;290;1;21;2;35;25;1;1;1;45.863324
Golden Crisp;P;C;100;2;0;45;0;11;15;40;25;1;1;0.88;35.252444
Crispy Wheat & Raisins;G;C;100;2;1;140;2;11;10;120;25;3;1;0.75;36.176196
Multi-Grain Cheerios;G;C;100;2;1;220;2;15;6;90;25;1;1;1;40.105965
Frosted Mini-Wheats;K;C;100;3;0;0;3;14;7;100;25;2;1;0.8;58.345141
Product 19;K;C;100;3;0;320;1;20;3;45;100;3;1;1;41.503540
Cream of Wheat (Quick);N;H;100;3;0;80;1;21;0;-1;0;2;1;1;64.533816
Grape Nuts Flakes;P;C;100;3;1;140;3;15;5;85;25;3;1;0.88;52.076897
Total Whole Grain;G;C;100;3;1;200;3;16;3;110;100;3;1;1;46.658844
Wheaties;G;C;100;3;1;200;3;17;3;110;25;1;1;1;51.592193
Wheat Chex;R;C;100;3;1;230;3;17;3;115;25;1;1;0.67;49.787445
Raisin Nut Bran;G;C;100;3;2;140;2.5;10.5;8;140;25;3;1;0.5;39.703400
Maypo;A;H;100;4;1;0;0;16;3;95;25;2;1;1;54.850917
Quaker Oat Squares;Q;C;100;4;1;135;2;14;6;110;25;3;1;0.5;49.511874
Life;Q;C;100;4;2;150;2;12;6;95;25;2;1;0.67;45.328074
Quaker Oatmeal;Q;H;100;5;2;0;2.7;-1;-1;110;0;1;1;0.67;50.828392
Honey-comb;P;C;110;1;0;180;0;14;11;35;25;1;1;1.33;28.742414
Frosted Flakes;K;C;110;1;0;200;1;14;11;25;25;1;1;0.75;31.435973
Rice Chex;R;C;110;1;0;240;0;23;2;30;25;1;1;1.13;41.998933
Corn Pops;K;C;110;1;0;90;1;13;12;20;25;2;1;1;35.782791
Fruity Pebbles;P;C;110;1;1;135;0;13;12;25;25;2;1;0.75;28.025765
Trix;G;C;110;1;1;140;0;13;12;25;25;2;1;1;27.753301
```

Question 3

```
dmatos45030@cis106vm:~/Documents/Csv$ cd ../Books/
dmatos45030@cis106vm:~/Documents/Books$ ls
bible.txt     great-expectastions.txt   war-and-peace.txt
dracula.txt   pride-and-prejudice.txt
dmatos45030@cis106vm:~/Documents/Books$ grep "War" war-and-peace.txt
The Project Gutenberg eBook of War and Peace, by Leo Tolstoy
Title: War and Peace
the Minister of War."
in to the Minister of War. Five minutes later he returned and bowing
corridor to the cabinet where the Minister of War was at work. The
narrowed disdainfully, he entered the room of the Minister of War with
interested the Minister of War less than any of the other matters he was
indifferent hands of the Minister of War and the polite adjutant. The
engagement and his reception by the Minister of War.
the Minister of War but also his Most August Majesty the Emperor and
invincibility of the French, and the Minister of War does not even care
to the Emperor Francis; he remembered the Minister of War, the polite
his own house. The Minister of War came up and congratulated him on the
That same night, having taken leave of the Minister of War, Bolkónski
Austrian Council of War at which Suvórov crowed like a cock in reply to
Warmed by the spring sunshine he sat in the calèche looking at the new
Minister of War, Count Arakchéev.
"He is Minister of War, a man trusted by the Emperor, and I need not
of War needlessly deviating."
```

```
dmatos45030@cis106vm:~/Documents/Books$ grep -i "War" war-and-peace.txt
The Project Gutenberg eBook of War and Peace, by Leo Tolstoy
Title: War and Peace
*** START OF THE PROJECT GUTENBERG EBOOK WAR AND PEACE ***
WAR AND PEACE
Buonapartes. But I warn you, if you don't tell me that this means war,
things, but Austria never has wished, and does not wish, for war. She
Pávlovna's hand and for some reason drawing it downwards. "Arrange
to get himself killed. Tell me what this wretched war is for?" she
she moved toward Anna Pávlovna. Hélène was so lovely that not only
"You are off to the war, Prince?" said Anna Pávlovna.
```

```
dmatos45030@cis106vm:~/Documents/Books$ grep -ic "War" war-and-peace.txt
1255
dmatos45030@cis106vm:~/Documents/Books$ grep -iwc "War" war-and-peace.txt
293
dmatos45030@cis106vm:~/Documents/Books$
```

```
65466:The great natural forces lie outside us and we are not conscious of
65527:The recognition of man's free will as something capable of influencing
65544:The more this field of motion spreads out before our eyes, the more
65561:The search for these laws has long been begun and the new methods of
65622:The struggle between the old views and the new was long and stubbornly
65963:The Project Gutenberg Literary Archive Foundation is a non-profit
65971:The Foundation's business office is located at 809 North 1500 West,
65987:The Foundation is committed to complying with the laws regulating
dmatos45030@cis106vm:~/Documents/Books$ grep -nw "^The" war-and-peace.txt
```

```
dmatos45030@cis106vm: ~/Documents/Books                      Q  =  _  □  ×

dmatos45030@cis106vm:~/Documents/Books$ grep -Rwi "love" ./
./war-and-peace.txt:not love liberty and equality? Even our Saviour preached lib
erty and
./war-and-peace.txt:and until you have ceased to love the woman of your choice a
nd have seen
./war-and-peace.txt:"And she's in love with Boris already. Just fancy!" said the
./war-and-peace.txt:"Natásha," he said, "you know that I love you, but...."
./war-and-peace.txt:"You are in love with me?" Natásha broke in.
./war-and-peace.txt:It was pleasant and touching to see these little girls in lo
ve; but
./war-and-peace.txt:"Ah, my love," answered Anna Mikháylovna, "God grant you nev
```

```
dmatos45030@cis106vm:~/Documents/Books$ grep -nR "^l...d" ./
./war-and-peace.txt:5254:liked to. He looked inquiringly at his monitress and sa
w that she was
./war-and-peace.txt:7296:liked to tell him. He gathered up the papers and with a
 bow to both,
./war-and-peace.txt:12933:liked to repeat to herself. It was the story of a girl
 who had been
./war-and-peace.txt:13034:loved more than himself. He kept telling himself that
he would consider
./war-and-peace.txt:13817:liked to help young men, was flattered by being asked
for his assistance
./war-and-peace.txt:21373:lived for glory.—And after all what is glory? The same
 love of others,
```

```
dmatos45030@cis106vm:~/Documents/Books$ grep -wniR "^d[aeiou]..." ./

./war-and-peace.txt:1028:don't feel that weakness in myself as yet, I know
a little person who
./war-and-peace.txt:2026:don't need it? Now you shall judge between us. I a
lways tell him: Here
./war-and-peace.txt:2755:day," said the visitor. "What a charming child," s
he added,
./war-and-peace.txt:2864:dear, there's friendship for you," he repeated. "H
e's joining
```

```
dmatos45030@cis106vm:~/Documents/Books$ grep -iE "a{2}" dracula.txt
help me deck the room with my garlic, which is all the way from Haarlem,
Haarlem. To-night Dr. Van Helsing is going away, as he has to be for a
dmatos45030@cis106vm:~/Documents/Books$
```