

Assignment 2: Computer Applications in CEE

Date Due: January 27, 2027

Instructor: Trani

Problem 1

One of the best web sites to learn about the development of computers is the History of Computers Museum (<http://www.computerhistory.org/revolution/timeline>). Look at the Museum timeline and briefly answer the following questions:

- a) Apple releases the personal computer named Lisa in 1983. Name a new technology brought by Lisa.
- b) In a sentence explain what is "Moore's Law".
- c) In one sentence explain the importance of ARPANET.
- d) In a sentence explain one achievement of Margaret Hamilton.
- e) In one sentence define what is a "pixel".
- f) Many years before AutoCad, DAC-1 was a successful computer aided design software. Name the company that developed the program.
- g) Name the fastest supercomputer today and the number of CPU cores.
- h) Name the year of release of the Nintendo Entertainment System game console.
- i) In the year 2000, Sharp Corporation introduced the J-Phone J-SH04. State the resolution the J-Phone camera (in pixels) and contrast that with your worn phone (state the brand and resolution of your phone camera).
- j) Python is one of the most popular languages today. Name the company and the developer of this important language.

Problem 2

For your own personal computer find the following:

- a) Number and model of CPU processor used
- b) CPU clock speed
- c) Computer Random Access Memory (RAM) size
- d) Graphics processing unit if any (GPU)
- e) How many **bytes** does your computer hard drive has to store information?

Problem 3

Use the Car Data file posted on Week 1 of our syllabus web page to answer the following questions.

- a) Import the data into an Excel file.
- b) Concatenate the car model and the country of origin create a new column.
- c) Create a new column in the spreadsheet to assign ta new weight **category** for each car according to the parameters shown in the table below. Use Excel to classify the car weight according to the following table. In your answer, show me an example of the Excel formula(s).

New Weight Category	Weight Range (lbs)
Very Light	<2800

New Weight Category	Weight Range (lbs)
Light	2800 to < 3200
Medium	3200 to < 4000
Heavy	> 4000

- d) Count how many cars belong to each of the new weight classes using the Excel COUNT commands.
- e) Use Excel conditional formatting to color code the values based on car new weight category. Assign red to Heavy, Blue to Category Medium, Yellow to Light and Green to Very Light.

Problem 4

A construction company requests a 10 year loan to purchase eight CAT 740 articulated trucks. The new equipment costs \$575,000 per truck.

- a) The bank offers loan at 6.2% per year over 15 years. Find the monthly payments to pay back the loan.
- b) Estimate the amount of the load paid as interest to the bank.



Caterpillar 740 Articulated Truck.