

CS303E Exam 1: Spring, 2025 § Version Draft
Dr. Bill Young § Friday, September 26, 2025

Number

Name: _____ EID: _____

Read the questions carefully, and answer each question in the space provided. If you like, you can use scratch paper to do your work, but copy your answers neatly and legibly onto the test paper. Only answers recorded on the test paper will be graded. Don't write in the spaces marked "Page Total" or "Grades" at the bottom of this page.

These two programming problems are from different versions of Exam1 last semester. They are slightly more complicated than what will be on your exam. If you can do these, you're probably OK. If you can't you need to study more.

1. (**Programming:** 10 points) The Valero station on Manor Road discounts their gas if you use a Valero credit card. The discount varies over time. I also have a Visa card that returns 3% on gas purchases. The best deal depends on the current price and the discount. Write on the next page the code you'd put in file `gasPurchase.py` to tell me which card to use, as in the example below. First ask for the price per gallon (in dollars) and the Valero discount (in dollars). Then print out the price per gallon using each card, with three digits after the decimal point. Finally, say which is the better deal, printing "Use Valero card!" or "Use Visa card!". If there's a tie, you can print either. Here's some sample behavior. Note that the first 2 lines are to get the user input; the last 3 are the report. There is a blank line between. You don't have to validate inputs.

```
> python gasPurchase.py
Price per gallon: 2.499                                     # ask for user input
Valero discount: 0.10                                       # ask for user input

Valero price: $2.399
Visa price: $2.424
Use Valero card!
```

2. (**Programming:** 10 points) Write code you could put in file `computetaxes.py` to compute an employee's taxes. First ask for the hours worked, hourly pay, and tax rate (all are floats). Compute the gross pay (hours worked times the hourly pay). If the gross pay is less than or equal to \$50.00 there are no taxes; otherwise, the tax is the gross pay times the tax rate. The net pay is the gross pay minus the tax. Report all dollar amounts with two digits after the decimal point. Write a report following two samples below. Note, the first 3 lines are for user input; the last 4 are the report. There is a blank line between. You don't have to validate inputs.

```
> python computeTaxes.py
Hours worked: 10
Hourly pay: 9.75
Tax rate: 0.25
```

```
Pay report
  Gross Pay: $97.50
  Tax: $24.38
Net Pay: $73.12
```

```
> python computeTaxes.py
Hours worked: 2
Hourly pay: 10.00
Tax rate: 0.20
```

```
Pay report
  Gross Pay: $20.00
  Tax: $0.00
Net Pay: $20.00
```