

## Lab 2: Branching

Assignment is due by the end of the lab and must be submitted through Blackboard.

**Submission instructions:** you must submit **one Python file**. Please name the file in the usual NetID\_2XX\_Lab2.py format.

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### **Problem Description**

1. A car dealer buys used cars from third party owners. They evaluate the cars based on their depreciation. They calculate the value of the vehicles based on the following conditions:

**The user will enter the following inputs:**

- a. MSRP at the time of buying
- b. Manufacture year
- c. Miles driven
- d. Number of accidents reported

**You are tasked to write a python program to calculate the value of the car:**

- a. For cars that are 3 years old or older (using 2022 as the current year), the total price depreciates by 500 dollars/year.
- b. For cars driven 50,000 miles or more, the price depreciates 100 dollars/1000 miles.
- c. For cars driven less than 50,000 miles, the price depreciates 50 dollars/1000 miles.
- d. If an accident is reported, for each reported accident, the price depreciates by 10% of the original MSRP.

### Example Runs:

```
MSRP: 25000
Manufacture Year: 2011
Miles Driven: 95000
Number of Accidents: 0
Value of vehicle: $10000.0
```

**Explanation:** The price of the car was 25000. The car is 11 years old (so definitely 3 years old or older). Because the car is 11 years old, the price falls 500 dollars for each year (as specified in the lab). So that is minus 5500 from the original 25000 dollars. The car has also gone 95000 miles, this is more than 50000 miles, as specified above, the price falls 100 dollars per 1000 miles or  $95 * 100 = 9500$ . So that is minus 9500 from the current price. No accidents were reported, so no depreciation there. Total is then calculated by:  $25000 - 5500 - 9500 = 10000$ . So, the current value of the car is \$10,000.00. (as outputted).

```
MSRP: 25000
Manufacture Year: 2011
Miles Driven: 95000
Number of Accidents: 2
Value of vehicle: $5000.0
```

**Explanation:** Most of the input is the same as example 1, however, now the user has reported 2 accidents. 10% of 25000 is 2500; based on the specifications above, for each accident, the price depreciates by 2500. There were 2 accidents, so a total of 5000 is lost. The final calculation is:  $25000 - 5500$  (age)  $- 9500$  (miles)  $- 5000$  (accidents)  $= 5000$ . So, the current value of the car is \$5000.00. (as outputted).

```
MSRP: 45000
Manufacture Year: 2021
Miles Driven: 500
Number of Accidents: 0
Value of vehicle: $44975.0
```

**Explanation:** The car is not 3 years or older, so no age depreciation. No accidents, so no depreciation for accidents. The car did drive for 500 miles. For cars driven under 50000 miles, the price depreciates 50 dollars/1000 miles. So, this car only depreciates 25 dollars since it hasn't driven 1000 miles yet. The final calculation is:  $45000 - 25 = 44975$ . (as outputted).

### Important Guidelines:

- Use math/relational/logic operators such as +, -, \*, /, \*\*, >, <=, and, or, not etc., as needed.
- Use if else, if elif as needed.
- Use input() as needed.
- Do not use loops at this time.
- The following data types and their casting functions may be used: int, float, str
- You may not import other modules (like math).
- Do not use string formatting for output only use basic string concatenation with print()
- Do not use any other programming element that has not been covered in the class or the ZyBook readings at this time.