

## Practice Exam: Vendor Product Ratings Analyzer

### Overview:

You will be writing a simple program to keep track of customer ratings for products sold at a campus vendor booth. Your program will allow the user to record ratings for items, calculate average ratings, view the most recent rating for each product, and review all recorded ratings.

### Functions Required

You must write two functions for this practice exam:

- *average\_rating*:
  - Takes in the dictionary of ratings and a product name. Returns the average rating (a float) for that product. If there are no ratings for that product, return 0.0.
- *latest\_rating*:
  - Takes in the dictionary of ratings and a product name. Returns the most recent rating that was recorded for that product. If there are no ratings for that product, return None.

### Logical Flow

Start your program by creating a dictionary with keys 'tshirts', 'mugs', and 'stickers'. Each key should have a corresponding empty list for their value that will later store integer ratings. Ratings will always be whole numbers between 1 and 5.

Your program should then enter a loop where it repeatedly displays a menu like this:

```
Vendor Product Ratings Analyzer:

1. Add a rating
2. Show average rating for each product
3. Show latest rating for each product
4. Show all raw ratings
5. Exit

Enter an option (1-5):
```

After completing the action for any chosen option, the menu should be displayed again until the user selects Exit.

### Option 1: Add a rating

- Display the available products (tshirts, mugs, stickers).
- Ask the user to enter the name of a product.
- Ask the user to enter a rating (integer 1–5).
- Append the rating to the correct product's list in the ratings dictionary.
- If the product name is not valid (meaning it doesn't match a product name in your dictionary that you created at the start) or the rating is not between 1 and 5, print an error message and do not add it.

### Option 2: Show average rating for each product

- For each product, call your *average\_rating* function, which should receive the ratings dictionary and a product as arguments, and return the average rating for that product (or return 0 if there aren't any ratings for that product)
- Print out the average rating with two decimal places.
- If there are no ratings yet for a product, the average should show as 0.00.

**Option 3: Show latest rating for each product**

- For each product, call your *latest\_rating* function.
- Print the most recent rating recorded for that product.
- If no ratings have been recorded yet for a product, print a message that says 'no ratings yet'.

**Option 4: Show all raw ratings**

- For each product, print out the full list of ratings exactly as they are stored in the dictionary.
  - If there are no ratings yet, just show an empty list.

**Option 5: Exit**

- Print a goodbye message and end the program.

**Any other input**

- If the user enters anything other than 1–5, print: Invalid choice, try again!

**Rubric:**

Since this is just a practice question, there isn't a detailed rubric. You can check your answer against the solution problem, or you can ask the TAs or professor if you want feedback on your practice problem.

**Example Output:**

```
Vendor Product Ratings Analyzer:

1. Add a rating
2. Show average rating for each product
3. Show latest rating for each product
4. Show all raw ratings
5. Exit

Enter an option (1-5): 1

Products:
    tshirts
    mugs
    stickers
Enter a product name: tshirts
Enter a rating (1-5): 4
Added rating 4 to tshirts.

Vendor Product Ratings Analyzer:

1. Add a rating
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```

Enter an option (1-5): 2

tshirts: average = 4.00

mugs: average = 0.00

stickers: average = 0.00

Vendor Product Ratings Analyzer:

1. Add a rating
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4. Show all raw ratings
5. Exit

Enter an option (1-5): 3

Latest Ratings:

tshirts: latest rating = 4

mugs: no ratings yet

stickers: no ratings yet

Vendor Product Ratings Analyzer:

1. Add a rating
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4. Show all raw ratings
5. Exit

Enter an option (1-5): 5

Exiting. Goodbye.