Assignment 1

Tips

Tan Thor Jen

Software Design

Small is Beautiful

- Write small functions (no function bigger than one page)
    - Easier to test
    - Easier to debug
    - Easier to combine them
- Every input can be a separate function so that we can do validations per input
- See https://github.com/tanwwg/dsa/blob/main/dsa_assignment1/main.py

```python
def input_name():
    while True:
        print("Please enter your name")
        name = input()
        if name == "":
            continue
        if len(name) < 3:
            print("Name must be at least 3 characters")
            continue
        if len(name) > 20:
            print("Name must be less than 20 characters")
            continue
        return name
```

Order

Tips for faster development

- Work on input data first
- Then save the data
- Load the data when the program is started
- Saves you time from having to keep inputting data over and over again

```python
import pickle

with open("data.pkl", "wb") as f:
    pickle.dump(my_list, f)
```

```python
with open("data.pkl", "rb") as f:
    my_list = pickle.load(f)
```

Validations

Don't accept bad input

- Non blank fields
- Employee ID should be unique
- Use Regex for email validation
- No need to check Enrolled Programmes or Department against a master list

Case insensitivity

Be user friendly

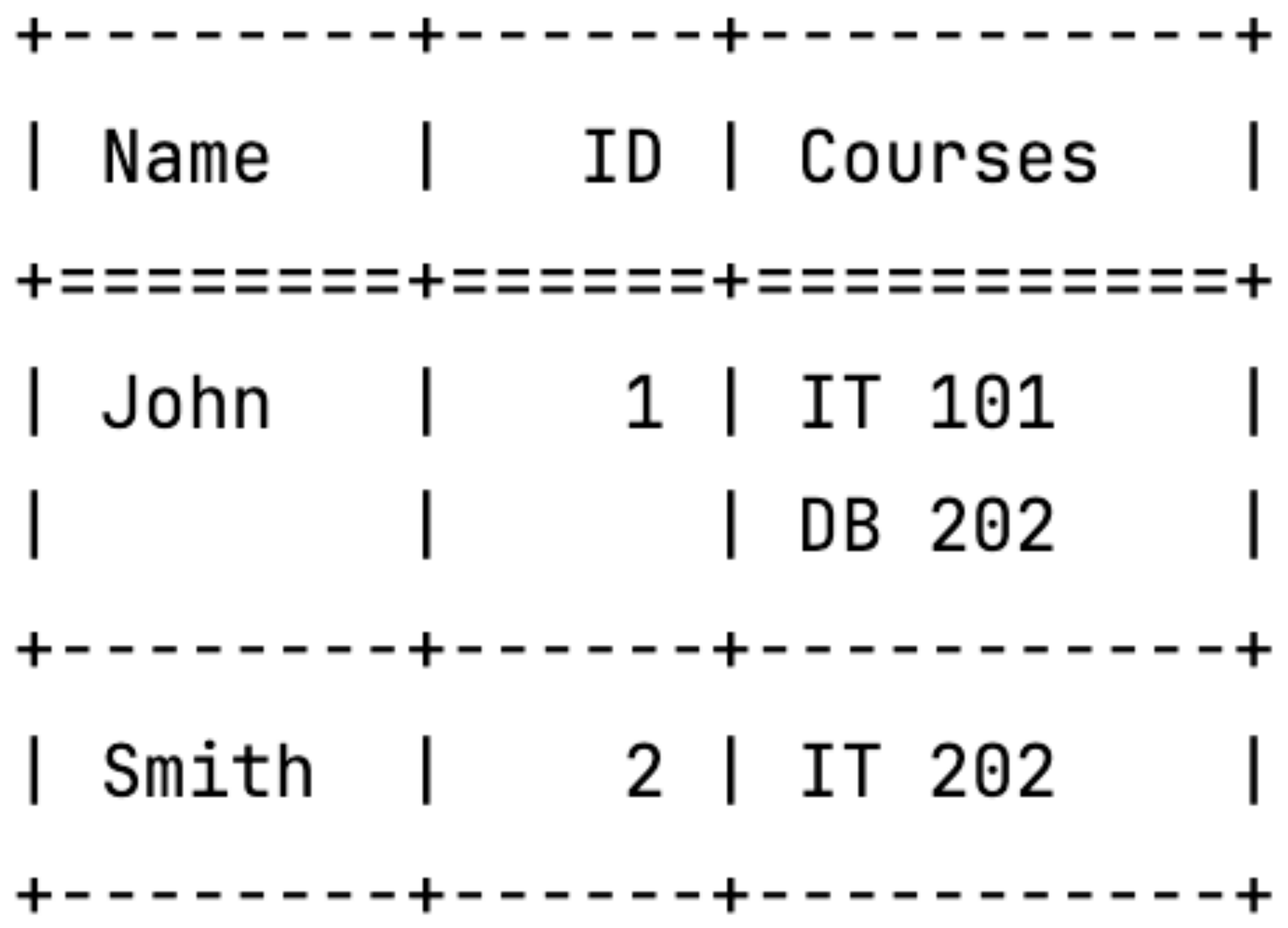
- When sorting or searching by a string, ignore case.
- i.e. JOHN and John should sort together
- i.e. searching for "j", and "JOHN" should be a valid result
- Easiest way is to use string.lower()

```
matches = [p for p in people if "bo" in p.name.lower()]
```

Formatting

Make it look nice

- Use tabulate package
- https://github.com/tanwwg/dsa/blob/main/dsa_assignment1/pretty_print.py
- Fulltime / Parttime status might be stored as a boolean, but should be printed out in full, i.e. "Full Time", "Part Time", or maybe F / P



```
+--------+------+-----------+
| Name   |   ID | Courses   |
+========+======+===========+
| John   |    1 | IT 101    |
|        |      | DB 202    |
+--------+------+-----------+
| Smith  |    2 | IT 202    |
+--------+------+-----------+
```

Use Colors

sparingly

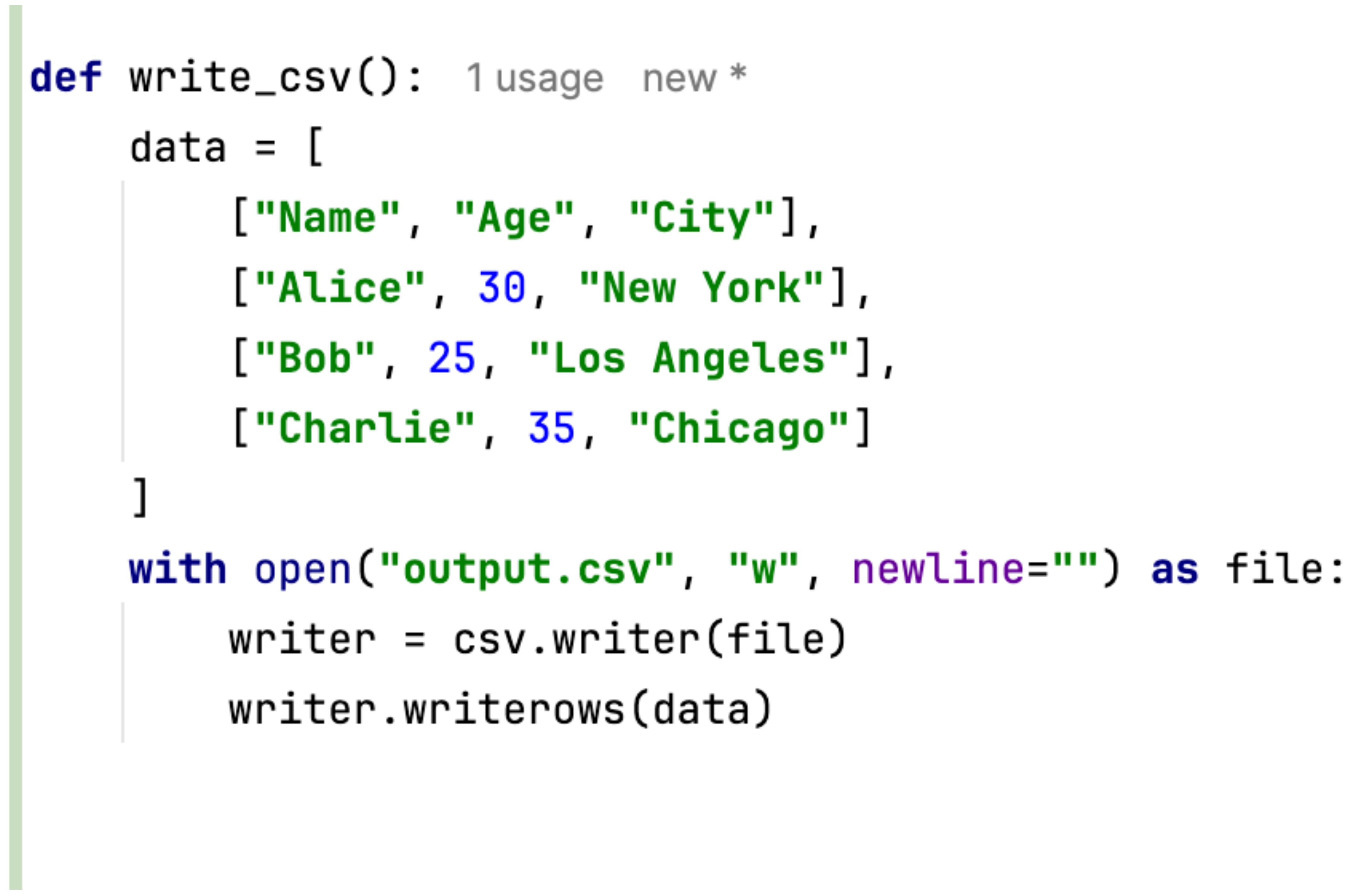
- Ideas:
    - Red for error
    - Blue for prompts

```python
def print_blue(s):
    print(f"\033[94m{s}\033[0m")
```

Export to CSV

Only 1 mark

- Don't spend too much time on it



```
def write_csv():  1 usage  new *
    data = [
        ["Name", "Age", "City"],
        ["Alice", 30, "New York"],
        ["Bob", 25, "Los Angeles"],
        ["Charlie", 35, "Chicago"]
    ]
    with open("output.csv", "w", newline="") as file:
        writer = csv.writer(file)
        writer.writerows(data)
```

Access Controls

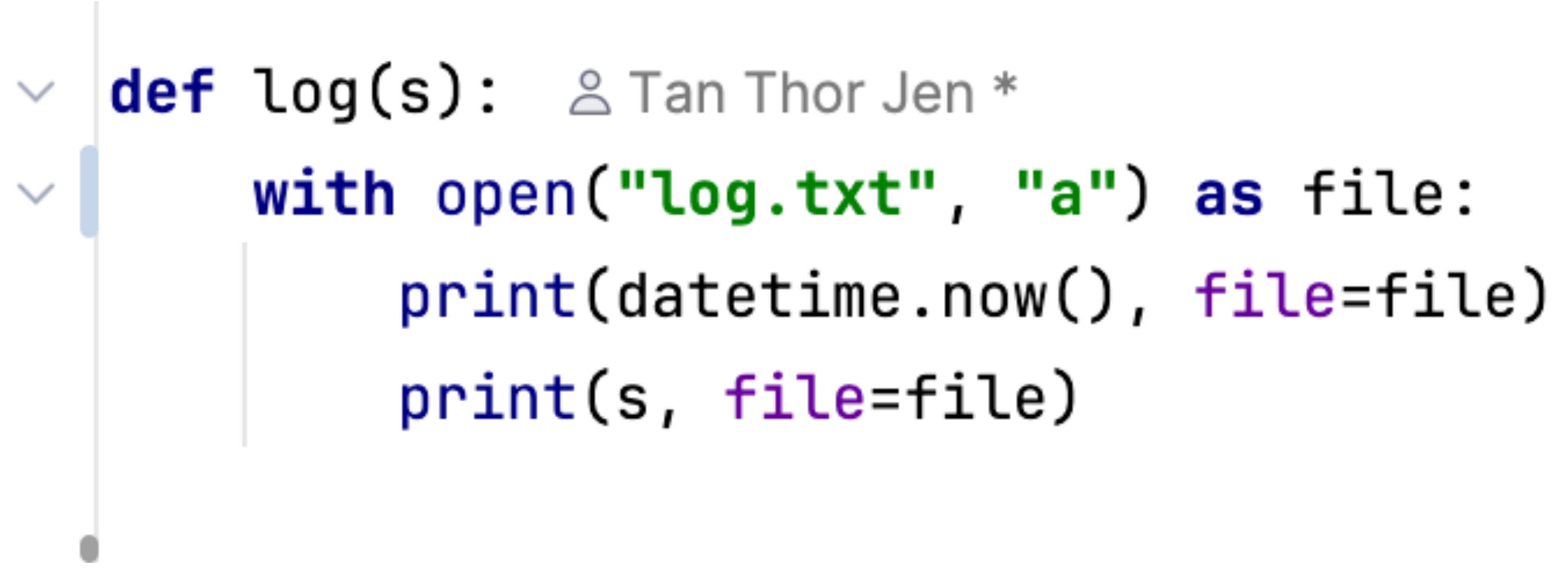
Only 1 mark

- A name/password login should be sufficient

Logging

Only 1 mark

- Ensure all operations are logged to a file



```
def log(s):  Tan Thor Jen *
    with open("log.txt", "a") as file:
        print(datetime.now(), file=file)
        print(s, file=file)
```