AI Society

Week 1: AI Student

[January 23, 2025]

Vision

Setup – Visual Studio Code & Github account

Variables and Data Types

```
temperature: int = 25
```

```
distance: float = 19.99
```

```
city: str = "New York"
```

```
is_active: bool = True
```

```
temperature = 25
```

```
print(type(temperature))
```

$\longrightarrow$

```
<class ‘int’>
```

Loops and Conditionals

```
number = 10

if number != 0:
    print(f"{number} is not zero")
```

Loops and Conditionals

```python
numbers = [0, 1, 2, 3, 4]
for number in numbers:
    if number != 0:
        print(f"{number} is not zero")
    else:
        print(f"{number} is zero")
```

Loops and Conditionals

```
for fruit in ["apple", "banana", "cherry", "orange"]:
    if fruit == "banana":
        continue
    print(f"I like {fruit}")
```

Loops and Conditionals

```
secret_number = 7
guess = 0
while guess != secret_number:
    guess = int(input("Guess the number: "))
    if guess < secret_number:
        print("Too low!")
    elif guess > secret_number:
        print("Too high!")
print("You guessed it!")
```

Iterable Data Types

```
fruits: list = ["apple", "banana", "cherry"]
coordinates: tuple = (10, 20, 30)
unique_numbers: set = {1, 2, 3, 4}
word: str = "hello"

for letter in word:
    print(letter)
```

Iterable Data Types

Element 0

```
fruits: list = ["apple", "banana", "cherry"]
coordinates: tuple = (10, 20, 30)
unique_numbers: set = {1, 2, 3, 4}
word: str = "hello"
```

Unordered

```
for letter in word:
    print(letter)
```

Iterable Data Types

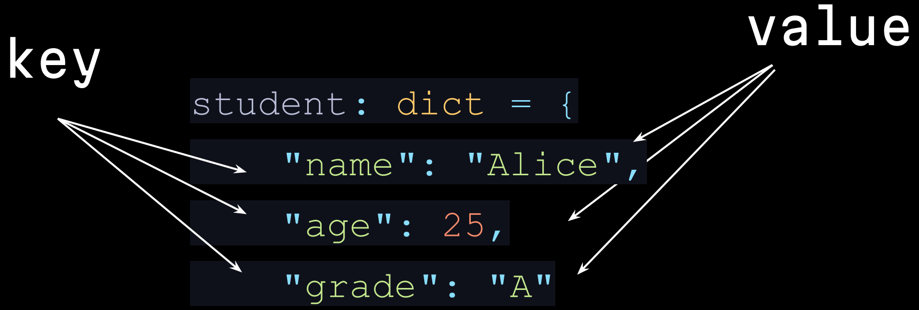
```python
fruits: list = ["apple", "banana",
"cherry"]
coordinates: tuple = (10, 20, 30)
unique_numbers: set = {1, 2, 3, 4}
word: str = "hello"

for letter in word:
    print(letter)
```

Changeable (mutable)

Unchangeable (immutable)

Unique elements

Iterable Data Types



```
student: dict = {
    "name": "Alice",
    "age": 25,
    "grade": "A"
}
```

```
student.get("grade")
Output: 'A'
```

```
for key, value in student.items():
    print(f"{key}: {value}")
```

Iterable Data Types

```
list(range(10))
Output: [0, 1, 2, 3, 4, 5, 6, 7, 8, 9]
```

```
for x in range(10):
    if x % 2 == 0:
        print(x, sep=" ")
```

```
Output: 0 2 4 6 8
```

Iterable Data Types

```
even_numbers = []
for x in range(4):
    if x % 2 == 0:
        even_numbers.append(x)

for i, e in enumerate(even_numbers):
    print(f"Index {i}: Number {e}")
```

```
Output:
"Index 0: Number 0"
"Index 1: Number 2"
```

Repetition & Larger Codebases

```
list_1 = [1, 2, 3]
list_2 = [4, 5, 6]
list_3 = [7, 8, 9]
total = 0
for number in list_1:
    total += number

for number in list_2:
    total += number

for number in list_3:
    total += number

print(total)
```

Functions

```
def sum_list(numbers: list[int]) -> int:
    total = 0
    for number in numbers:
        total += number
    return total

list_1 = [1, 2, 3]
list_2 = [4, 5, 6]
list_3 = [7, 8, 9]

total = sum_list(list_1) + sum_list(list_2) + sum_list(list_3)

print(total)
```

Importing Modules

File tree

```
project/
├── main.py
├── utilities.py
```

utilities.py

```python
def greet(name):
    return f"Hello, {name}!"
```

main.py

```python
import utilities

# Use the custom module
message =
utilities.greet("Alice")
print(message)
```

Classes and Methods

```
import datetime

class Task:
    def __init__(self, title: str, description: str, due_date: datetime.date):
        self.title = title
        self.description = description
        self.due_date = due_date

    def __str__(self):
        return f"Task(title={self.title}, due_date={self.due_date})"
```

Classes and Methods

```python
class RecurringTask(Task):
    def __init__(self, title, description, due_date, frequency):
        super().__init__(title, description, due_date)
        self.frequency = frequency  # e.g., "daily", "weekly", "monthly"

print(
    RecurringTask(
        "Cook",
        "Cook dinner for the family",
        "daily"
    )
)
```

Classes and Methods

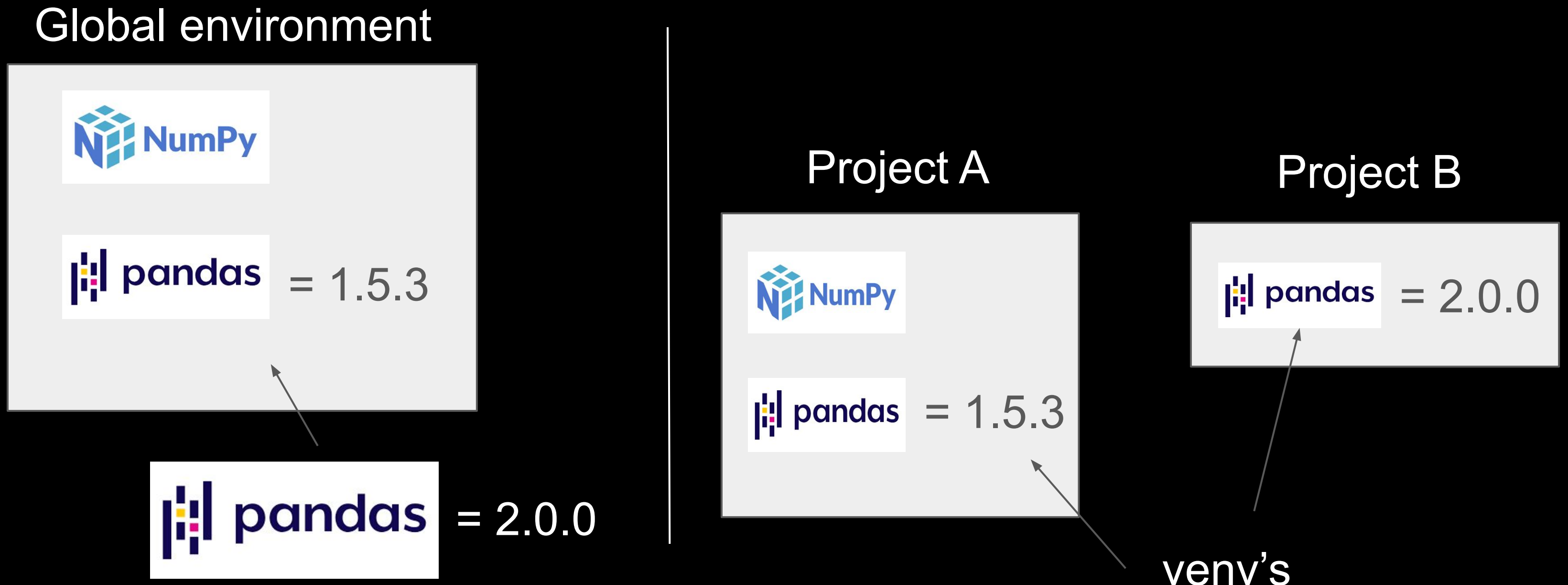
Examples continue in VS Code

Decorators

Examples continue in VS Code

Environment Setup

Code in VS Code



Git & GitHub

Generate

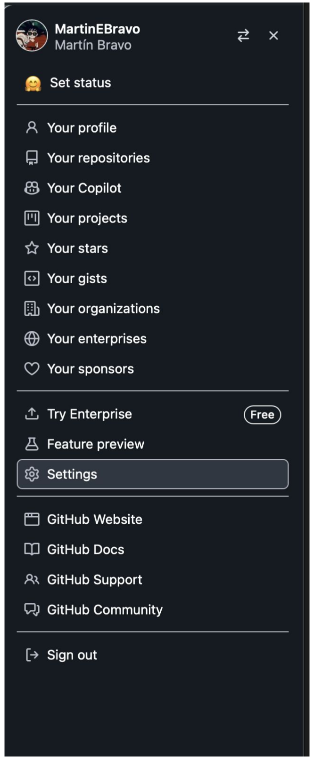
Adding key

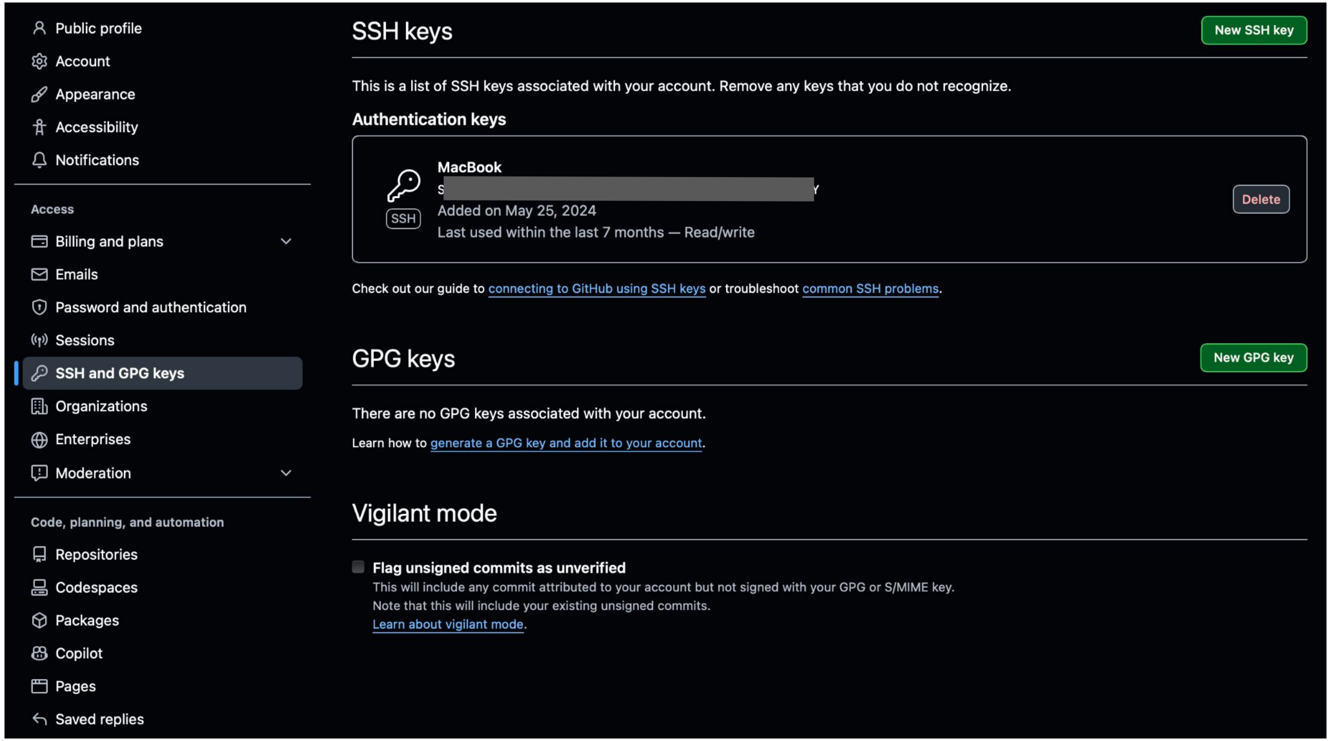
Git & GitHub

Generate

Adding key

GitHub





SSH keys

This is a list of SSH keys associated with your account. Remove any keys that you do not recognize.

Authentication keys

MacBook
SSH
s[redacted]Y
Added on May 25, 2024
Last used within the last 7 months — Read/write

Check out our guide to connecting to GitHub using SSH keys or troubleshoot common SSH problems.

GPG keys

There are no GPG keys associated with your account.

Learn how to generate a GPG key and add it to your account.

Vigilant mode

Flag unsigned commits as unverified
This will include any commit attributed to your account but not signed with your GPG or S/MIME key.
Note that this will include your existing unsigned commits.
Learn about vigilant mode.

Git & GitHub

`git clone <repo>` → Clone a repository

`git add .` → Add the changes to the future commit

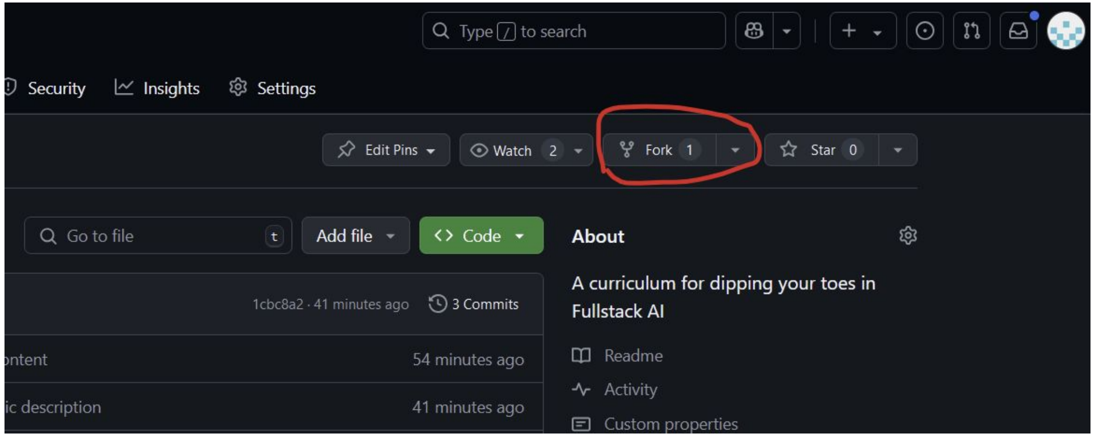
`git commit -m "Initial commit"` → Add a name and commit

`git push origin main` → Upload the commit to the main branch

Git repo in this course

1. Go to course github

2. Fork



A curriculum for dipping your toes in Fullstack AI

3. git clone
   git@github.com:<your_github_username>/AIStudent.git