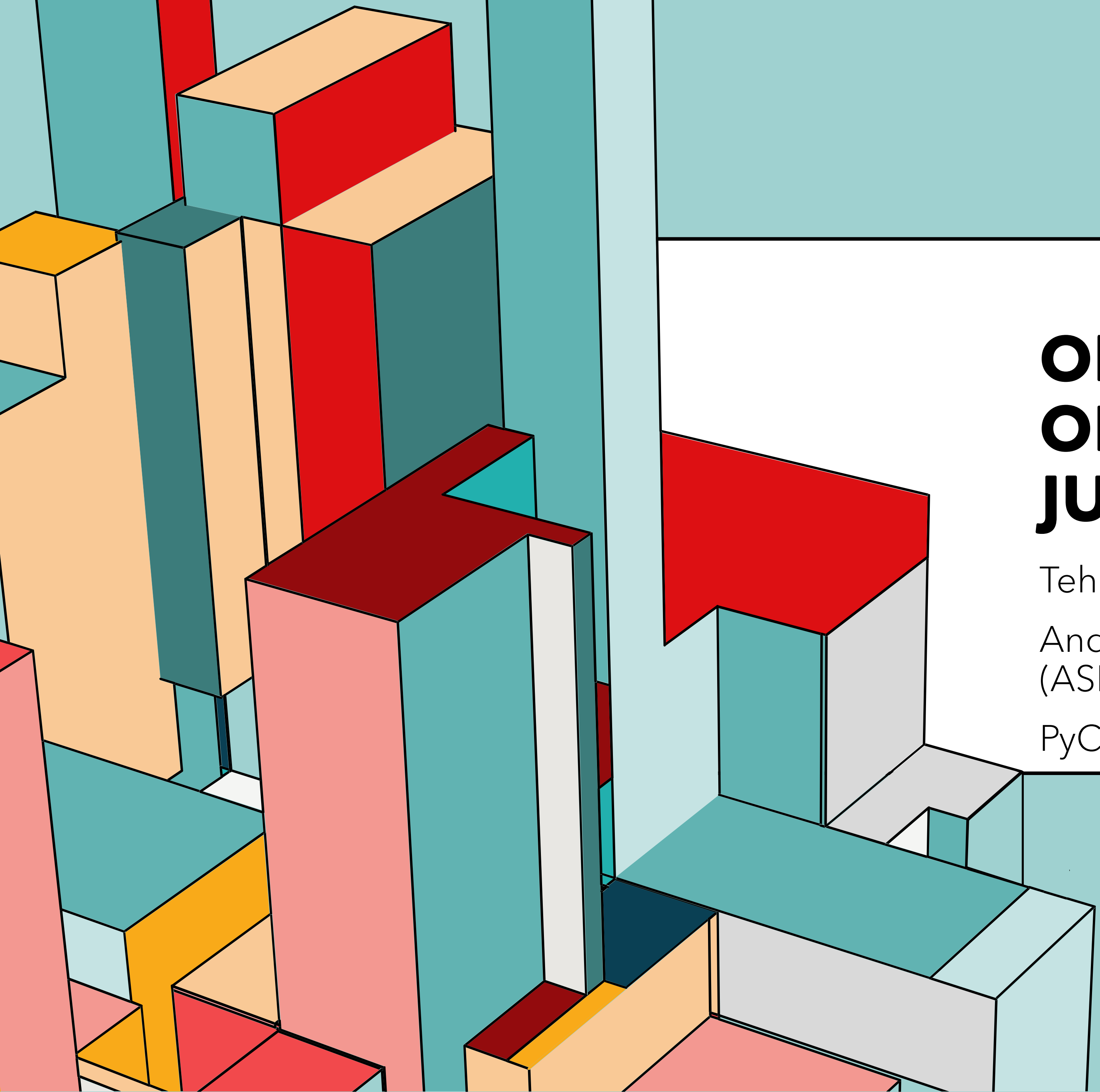


TALK SLIDES

ON PY: CHRONICLES OF THE SNAKE IN JUNIOR COLLEGE

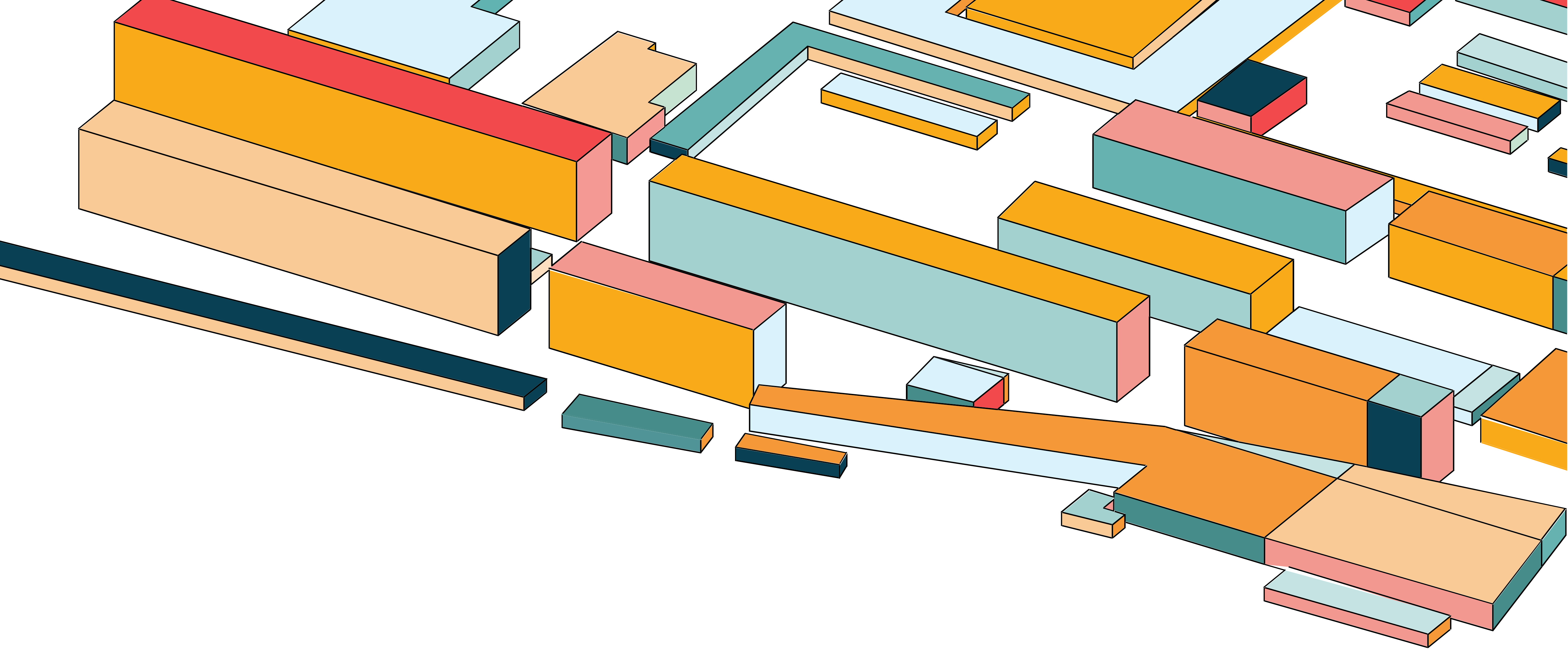
Teh Kim Wee

Anderson Serangoon Junior College (ASRJC)

PyCon SG Education Summit 2023

WHOAMI

- Studying in ASRJC
- ICT Champion
- Combination: CME/p
- Do not take computing
- Enthusiastic in the realms of A.I.

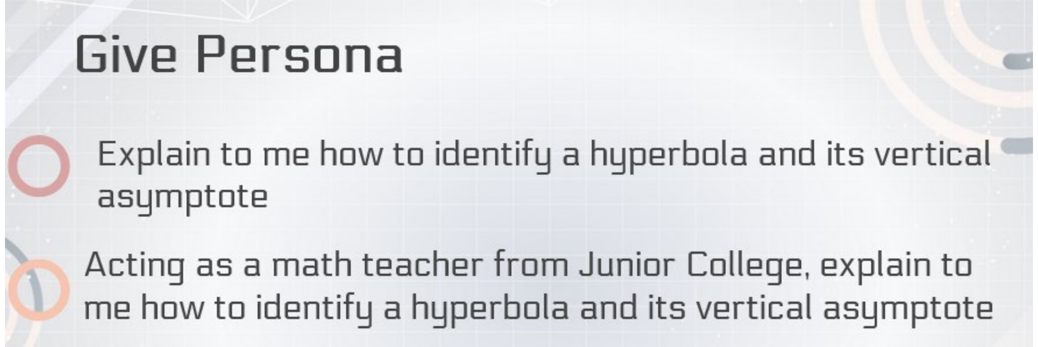


PYTHON EXPERIENCE

DIGITAL LITERACY LESSON

- Given an opportunity to teach JC1s digital literacy
- Group chose the "big thing" in 2023:

- Shared importance of "Prompt Engineering"

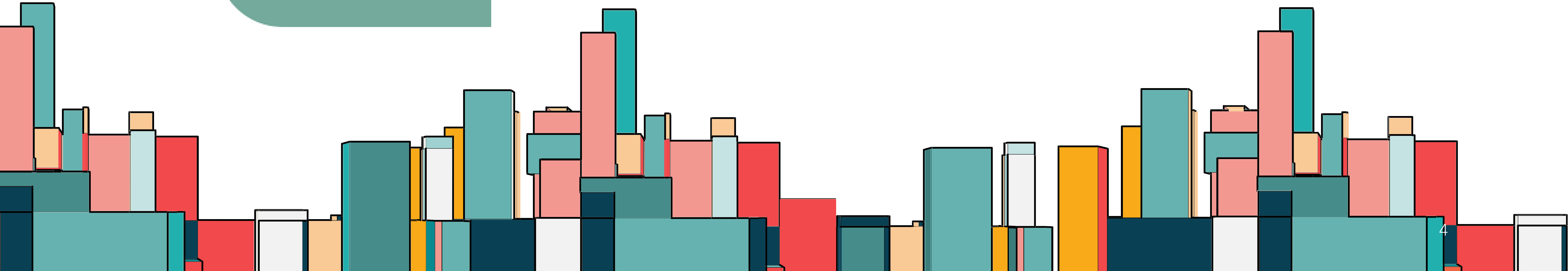


Give Persona

Explain to me how to identify a hyperbola and its vertical asymptote

Acting as a math teacher from Junior College, explain to me how to identify a hyperbola and its vertical asymptote

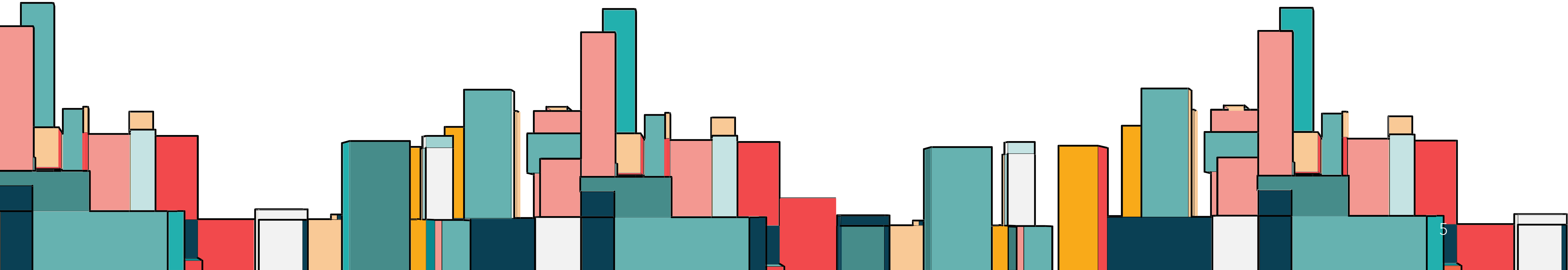
- Shows JC1 students effective prompt techniques



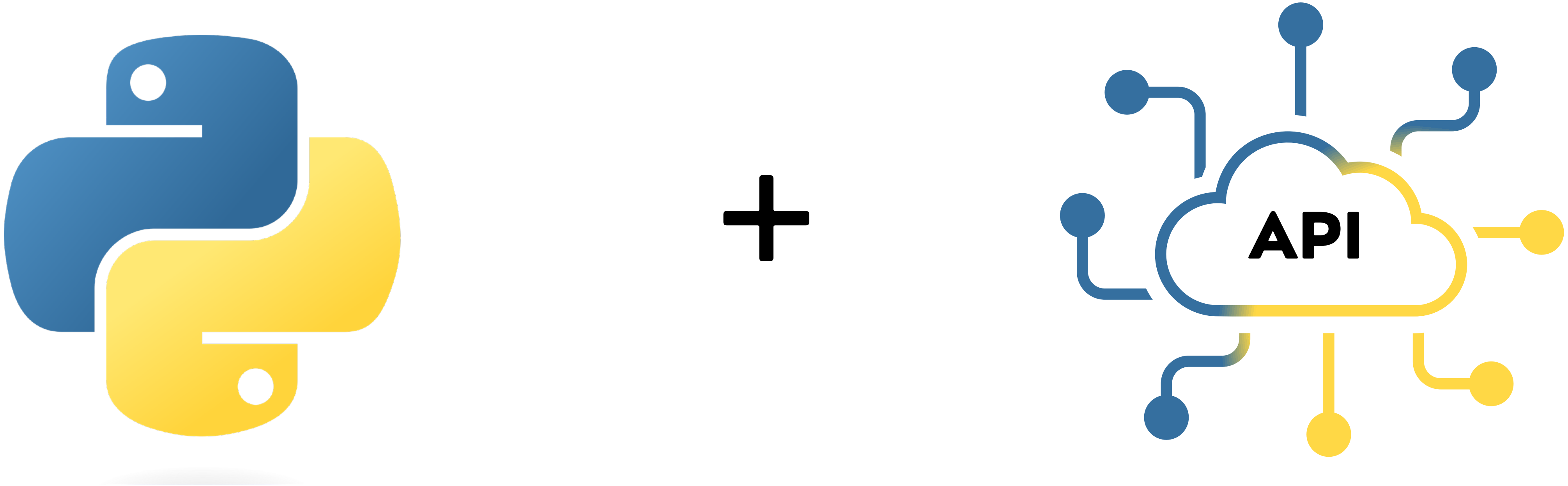
PROBLEM…

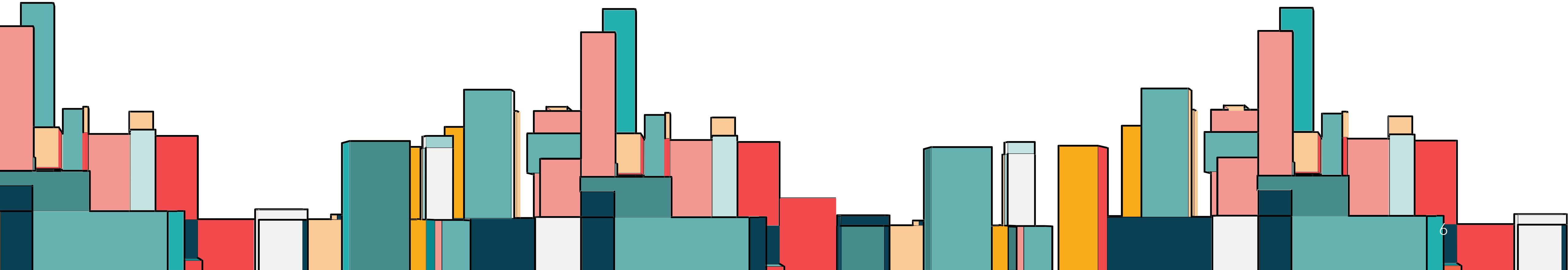
- Short 50 min window : Didn't allow us to troubleshoot account set-up etc.
- Fellow IT Rep brought up issue on CHATGPT age requirements for account creation

THE END?



THE SNAKE SLITHERS…





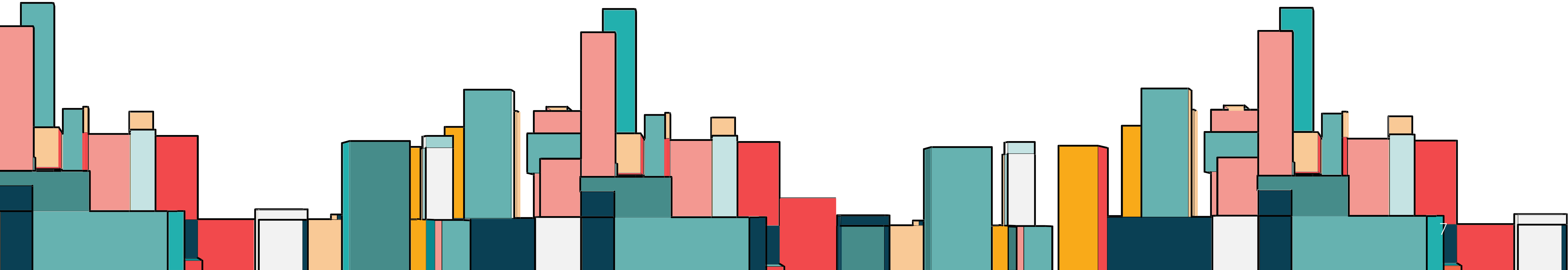
SOLUTION

- CHATGPT API gives free $18 credit for all users
- Use IT Rep’s API key to run a server for students to experience CHATGPT

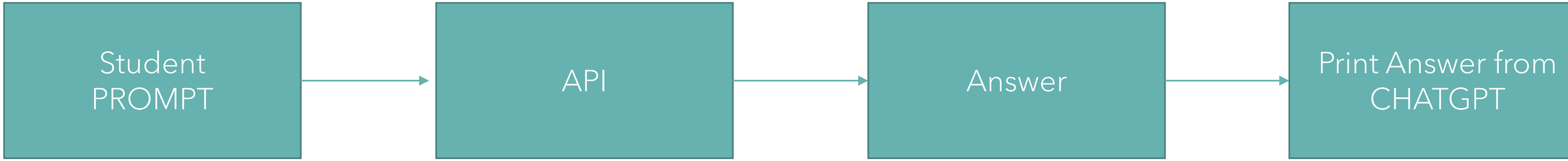
Google Colaboratory

PERFECT PLATFORM!

- CHATGPT Python API
- No set-up needed: Good for school laptops
- Easy to share code with other IT reps to conduct lesson
- Easy to update code: Bye Bugs



SOLUTION OVERVIEW

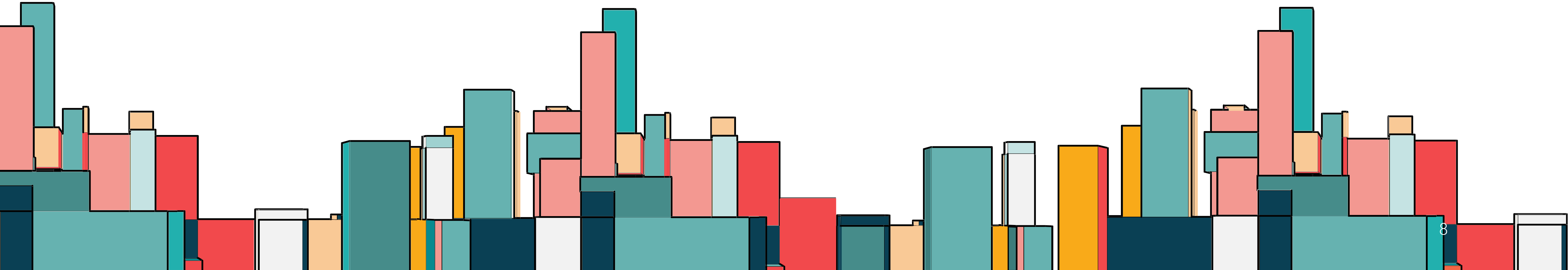


Student PROMPT

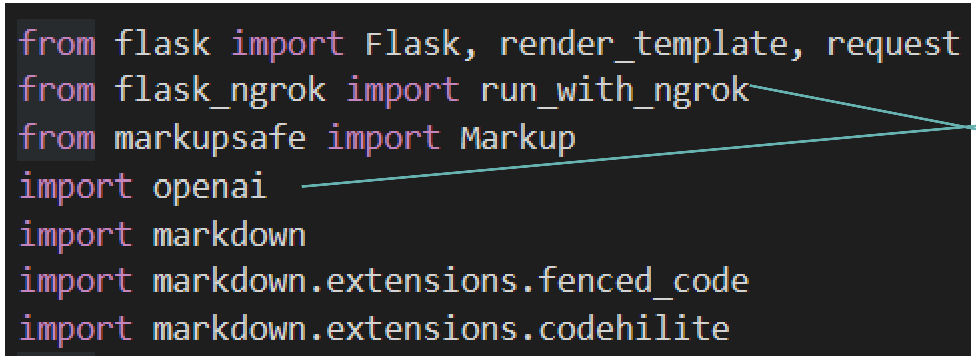
API

Answer

Print Answer from CHATGPT

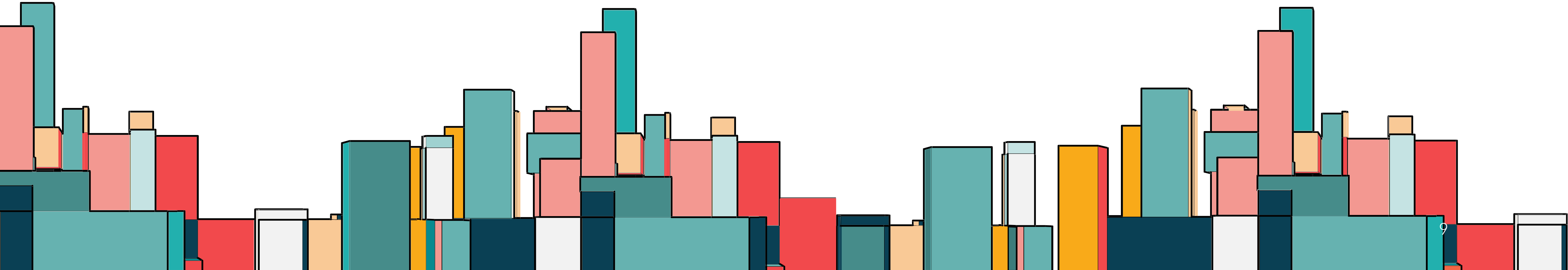


CODING

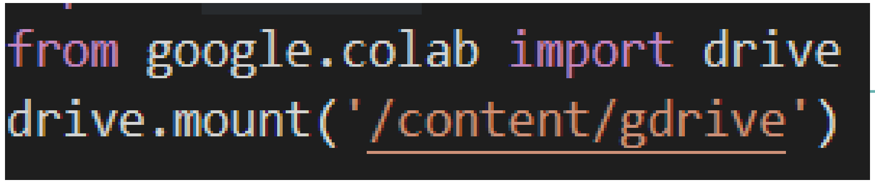


```python
from flask import Flask, render_template, request
from flask_ngrok import run_with_ngrok
from markupsafe import Markup
import openai
import markdown
import markdown.extensions.fenced_code
import markdown.extensions.codehilite
```

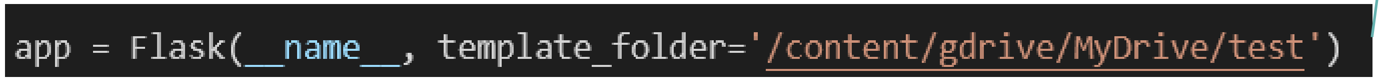
- OPENAI API
- Spawn a Flask server in colab with ngrok



GOOGLE DRIVE TO THE RESCUE!



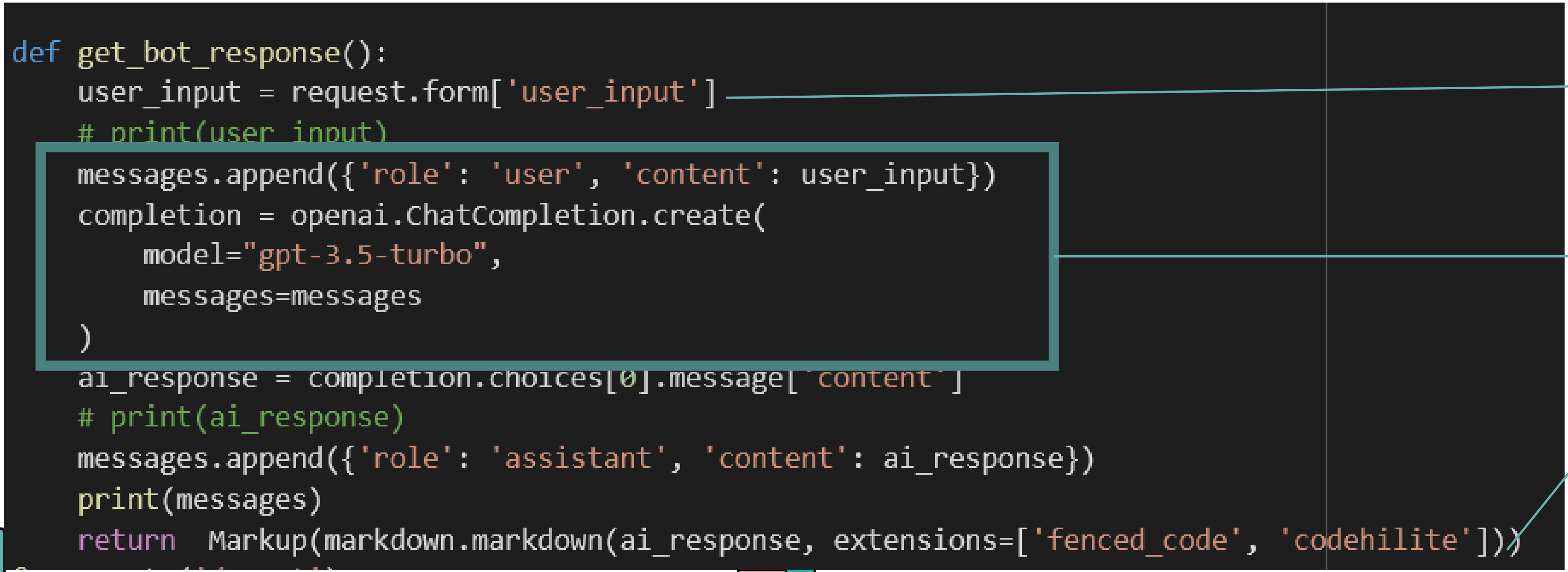
```
from google.colab import drive
drive.mount('/content/gdrive')
```



```
app = Flask(__name__, template_folder='/content/gdrive/MyDrive/test')
```

- Google Drive to ensure flask template folder stays

USING THE API & PRINTING RESPONSE



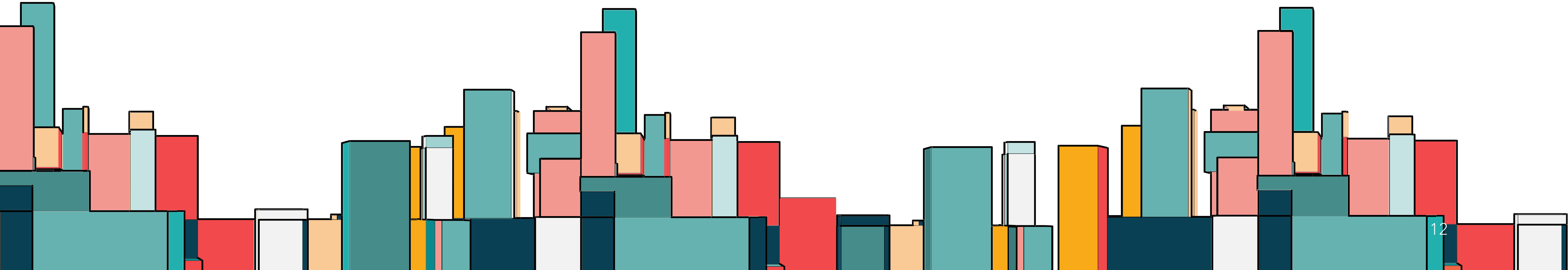
```
def get_bot_response():
    user_input = request.form['user_input']
    # print(user_input)
    messages.append({'role': 'user', 'content': user_input})
    completion = openai.ChatCompletion.create(
        model="gpt-3.5-turbo",
        messages=messages
    )
    ai_response = completion.choices[0].message['content']
    # print(ai_response)
    messages.append({'role': 'assistant', 'content': ai_response})
    print(messages)
    return  Markup(markdown.markdown(ai_response, extensions=['fenced_code', 'codehilite']))
```

Get User Input from form

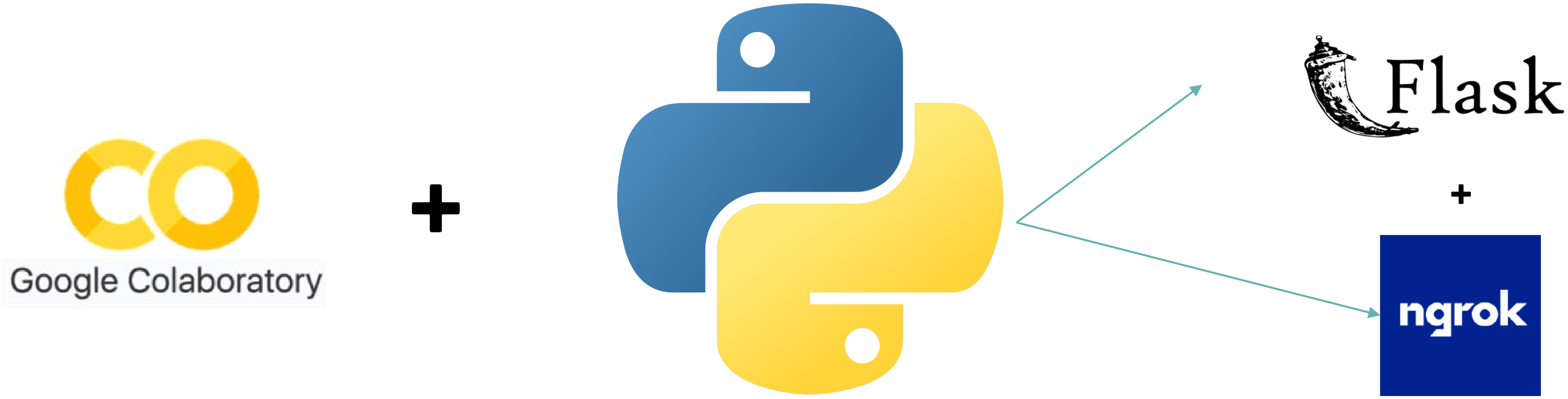
Use CHATGPT API

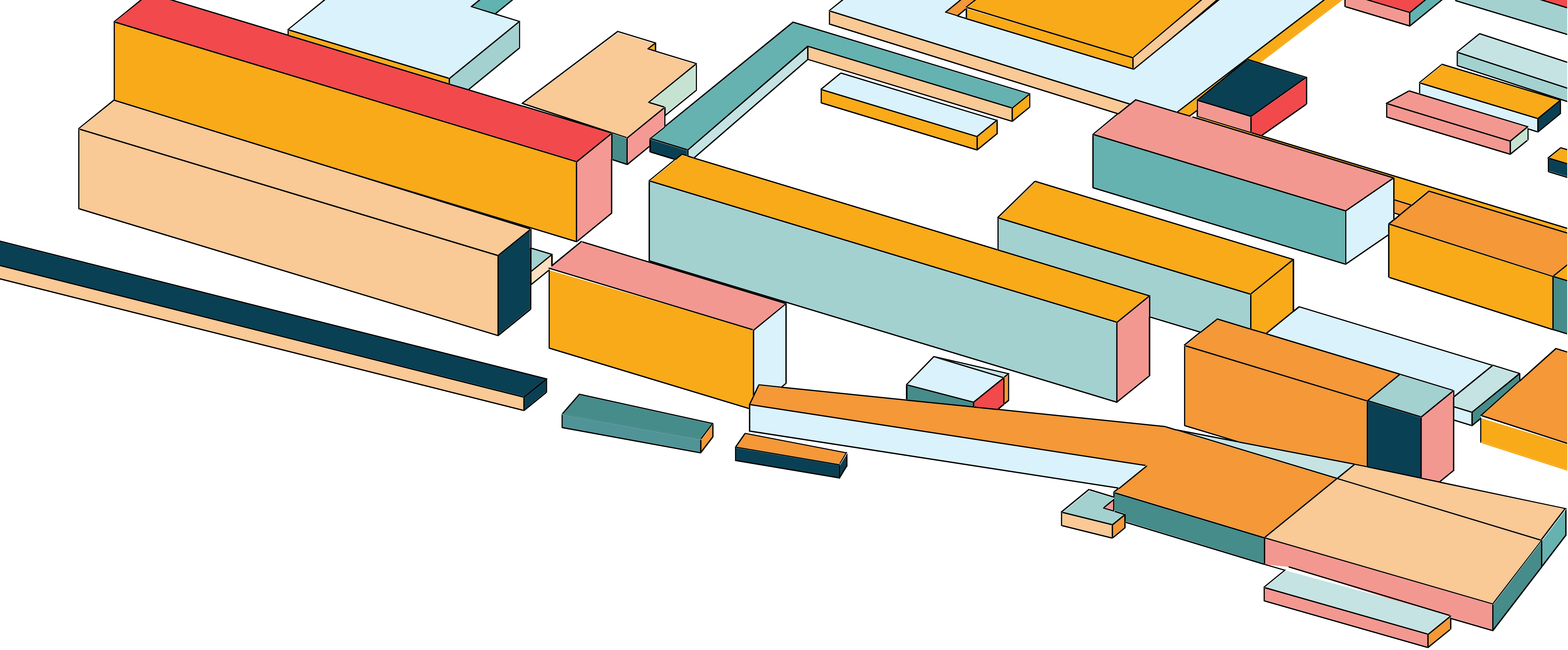
Return Response from GPT

LIVE DEMONSTRATION!
(5 MINUTES)

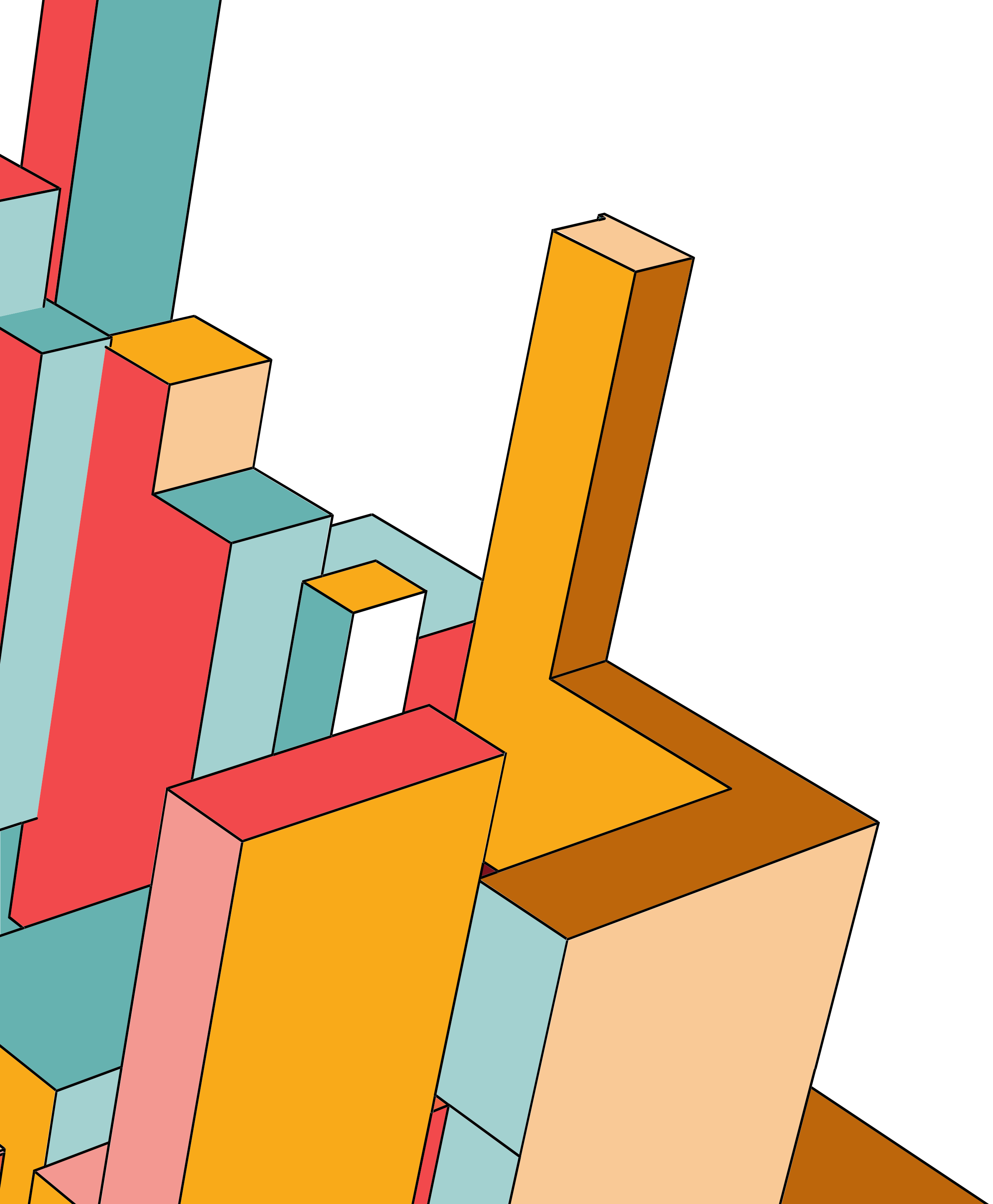


GGEZ WITH:





☺ TEACHING PYTHON ☺



INTRO TO PYTHON

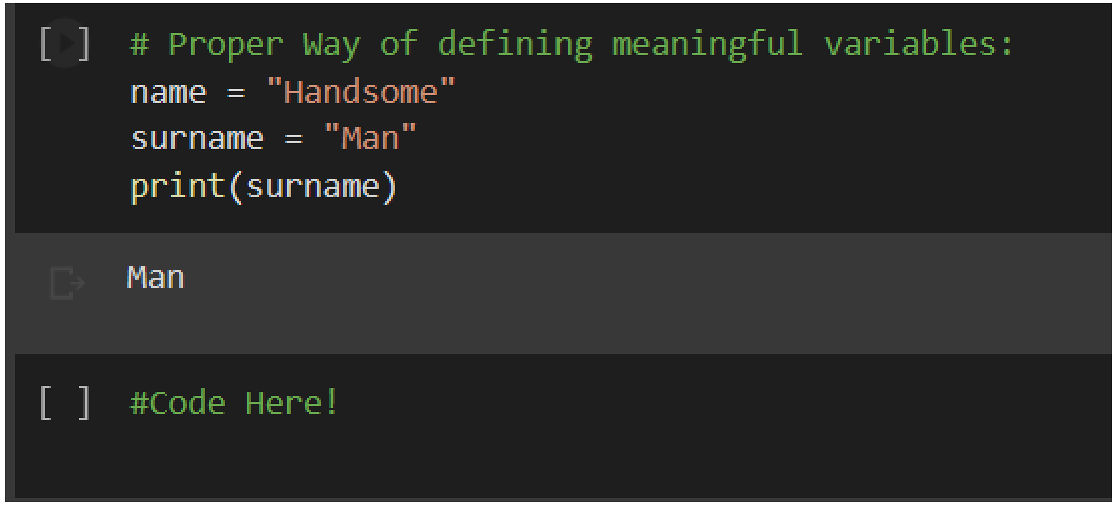
NUMPY

PANDAS

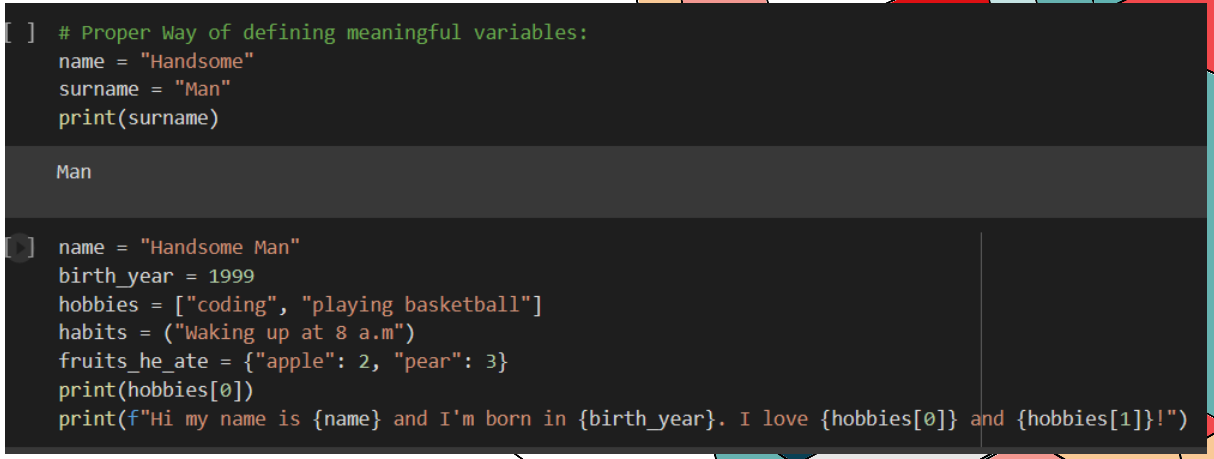
CHATGPT API

METHOD

- Using Colab & PowerPoint as main way to teach
- Student's Colab & Teachers Colab

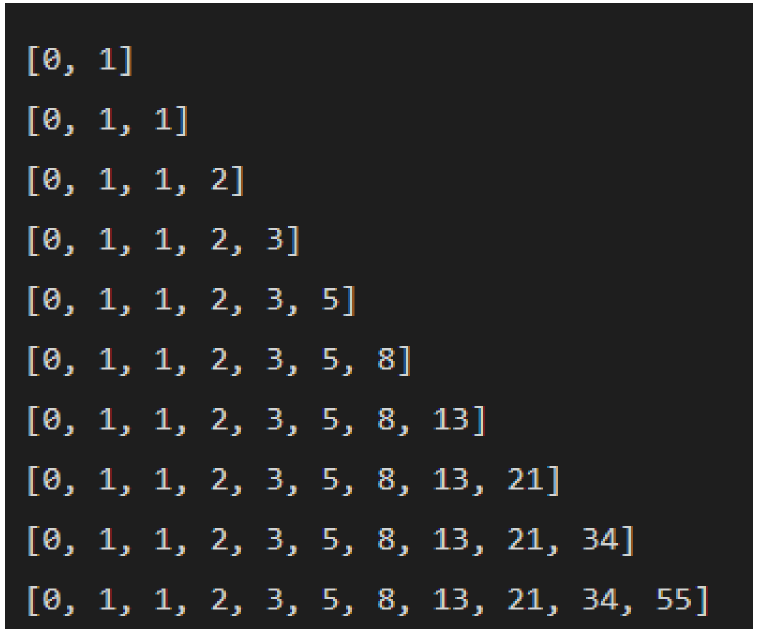


```
[ ] # Proper Way of defining meaningful variables:
    name = "Handsome"
    surname = "Man"
    print(surname)

    Man

[ ] #Code Here!
```

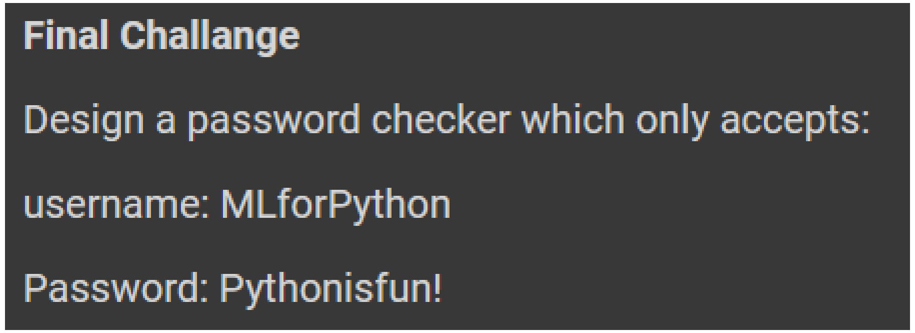


```
[ ] # Proper Way of defining meaningful variables:
    name = "Handsome"
    surname = "Man"
    print(surname)

    Man

[ ] name = "Handsome Man"
    birth_year = 1999
    hobbies = ["coding", "playing basketball"]
    habits = ("Waking up at 8 a.m")
    fruits_he_ate = {"apple": 2, "pear": 3}
    print(hobbies[0])
    print(f"Hi my name is {name} and I'm born in {birth_year}. I love {hobbies[0]} and {hobbies[1]}!")
```

SEGMENT CHALLANGES



```
[0, 1]
[0, 1, 1]
[0, 1, 1, 2]
[0, 1, 1, 2, 3]
[0, 1, 1, 2, 3, 5]
[0, 1, 1, 2, 3, 5, 8]
[0, 1, 1, 2, 3, 5, 8, 13]
[0, 1, 1, 2, 3, 5, 8, 13, 21]
[0, 1, 1, 2, 3, 5, 8, 13, 21, 34]
[0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55]
```

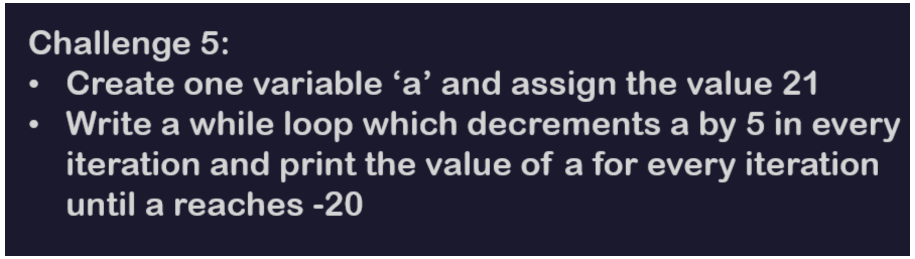


Final Challange

Design a password checker which only accepts:

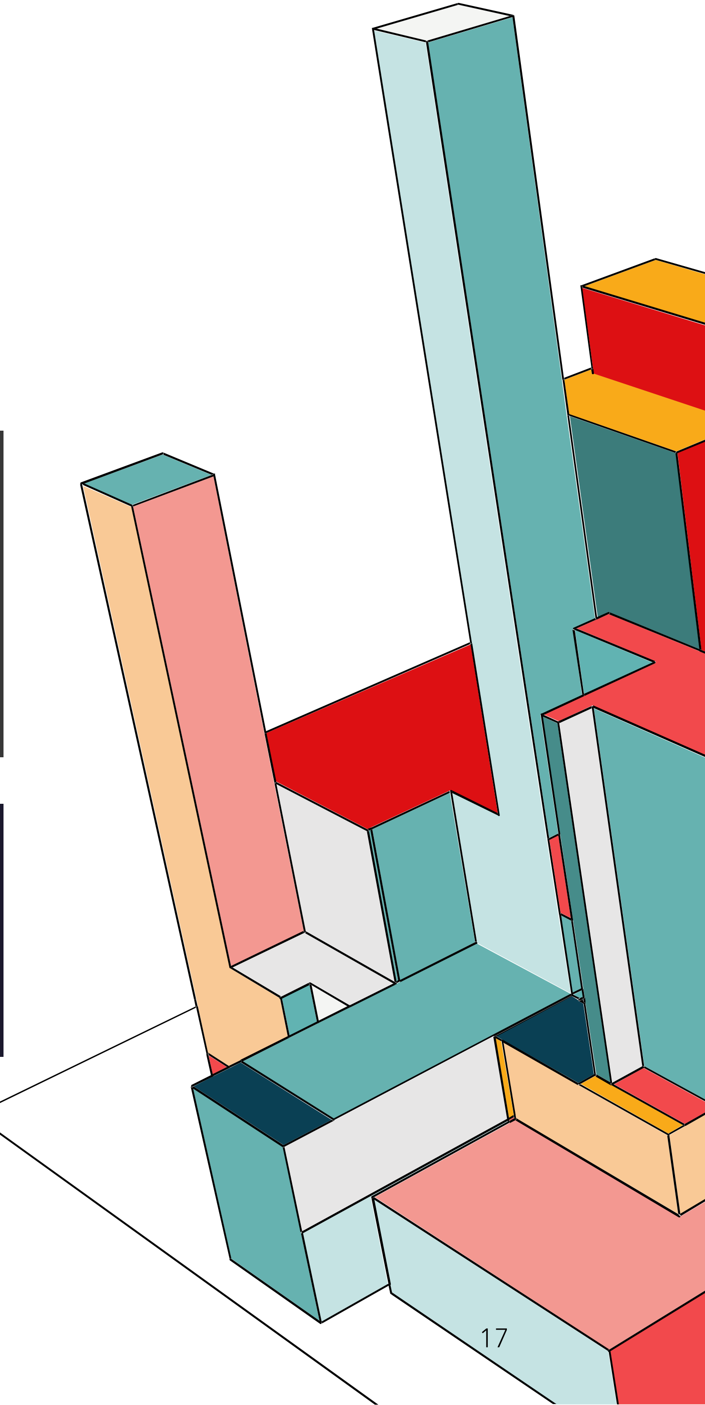
username: MLforPython

Password: Pythonisfun!



Challenge 5:

- Create one variable ‘a’ and assign the value 21
- Write a while loop which decrements a by 5 in every iteration and print the value of a for every iteration until a reaches -20

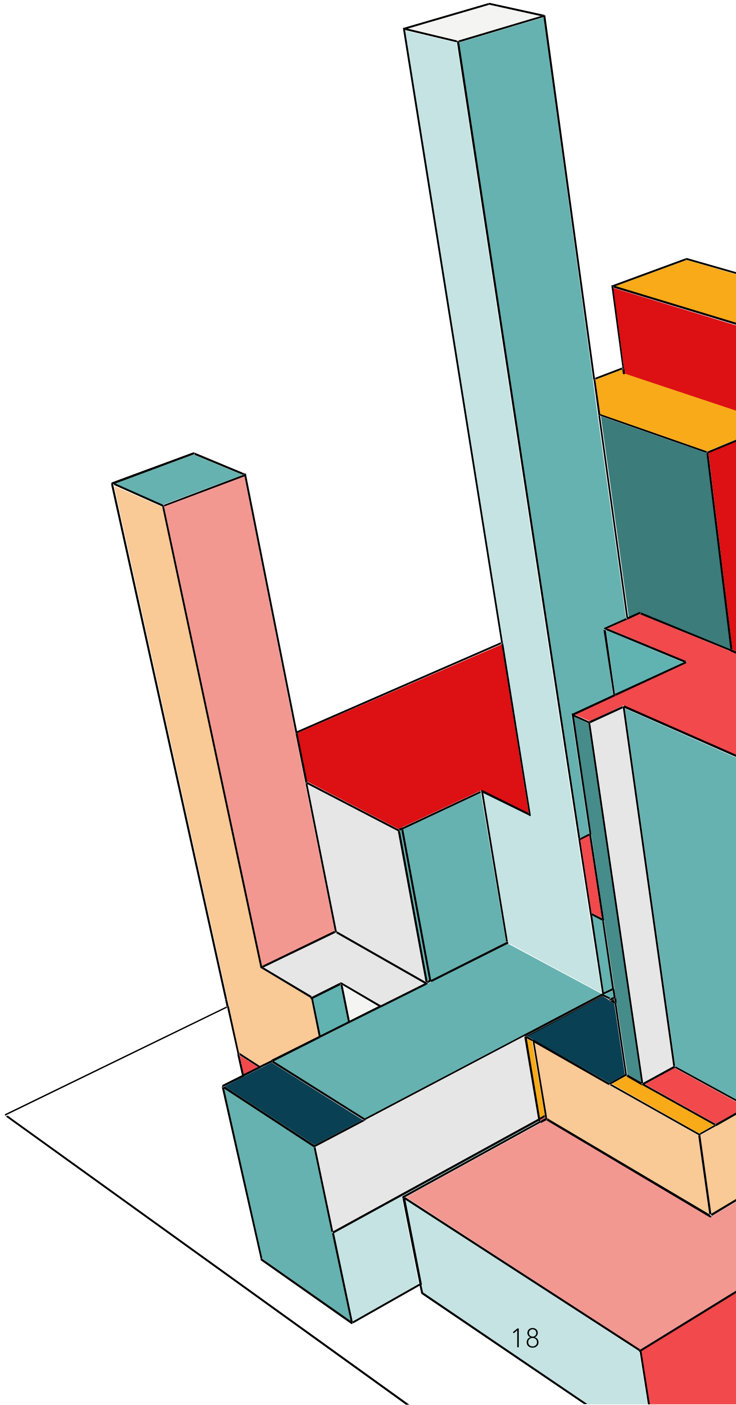


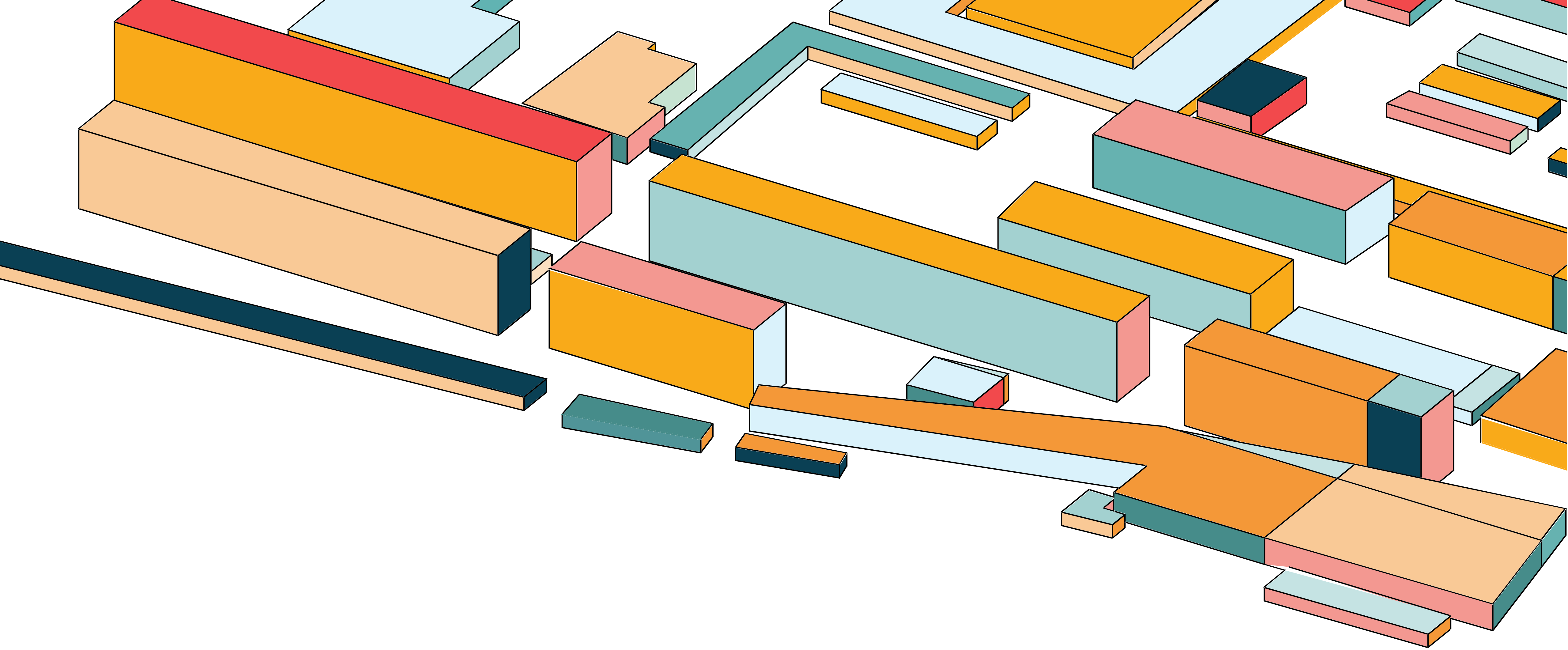
PLAYGROUND TIME

- Students are given time to discuss about code with peers
- Go around personally and check in on everyone

STEM / STA Picture

- Stronger students helps weaker students to understand





REFLECTIONS

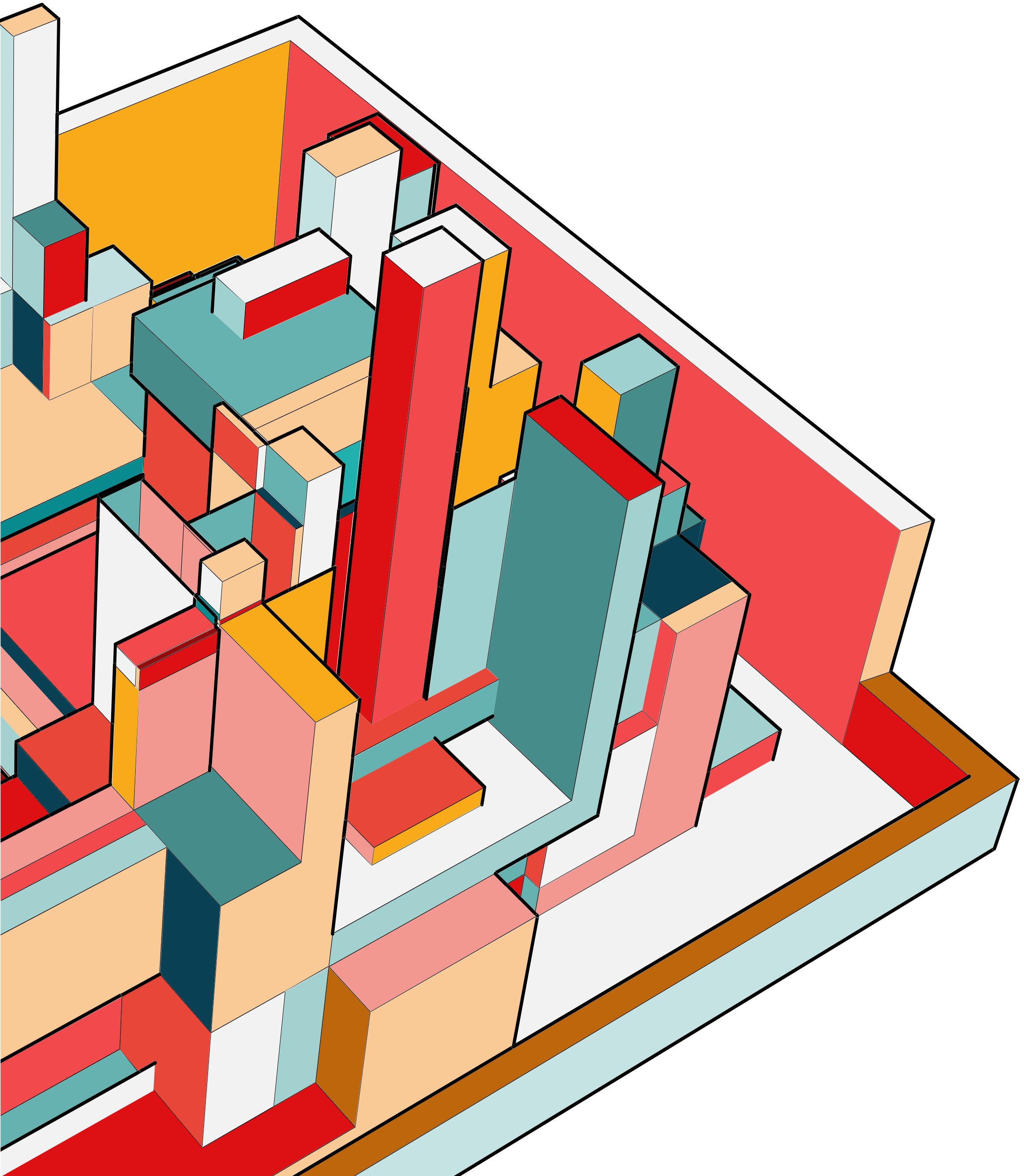
EFFICIENCY & EFFICACY

Efficiency

- Visualisations allows for students to better understand the code
- Pose Questions to trigger thinking → Meaningful distractions for students to appreciate code better
- Encourage CHATGPT to help with problem-solving & code processing

Efficacy

- Concepts like "for" or "while" loops need to slow down
- Adjusting Pace after every lesson conducted to ensure deep understanding
- Explain the thinking process of the problem, do not just explain what the code does



PYTOOL

- Community Support is strong
  - Forums e.g. (StackOverflow)
- Ignite & Challenge students to use Python to solve problems
  - H1 PW
  - Flask Web-Apps
- Do it the Python Way!: Make it Simple

THANK YOU

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Contact:

MEWTWO#6724

OPEN TO COLLABRATION