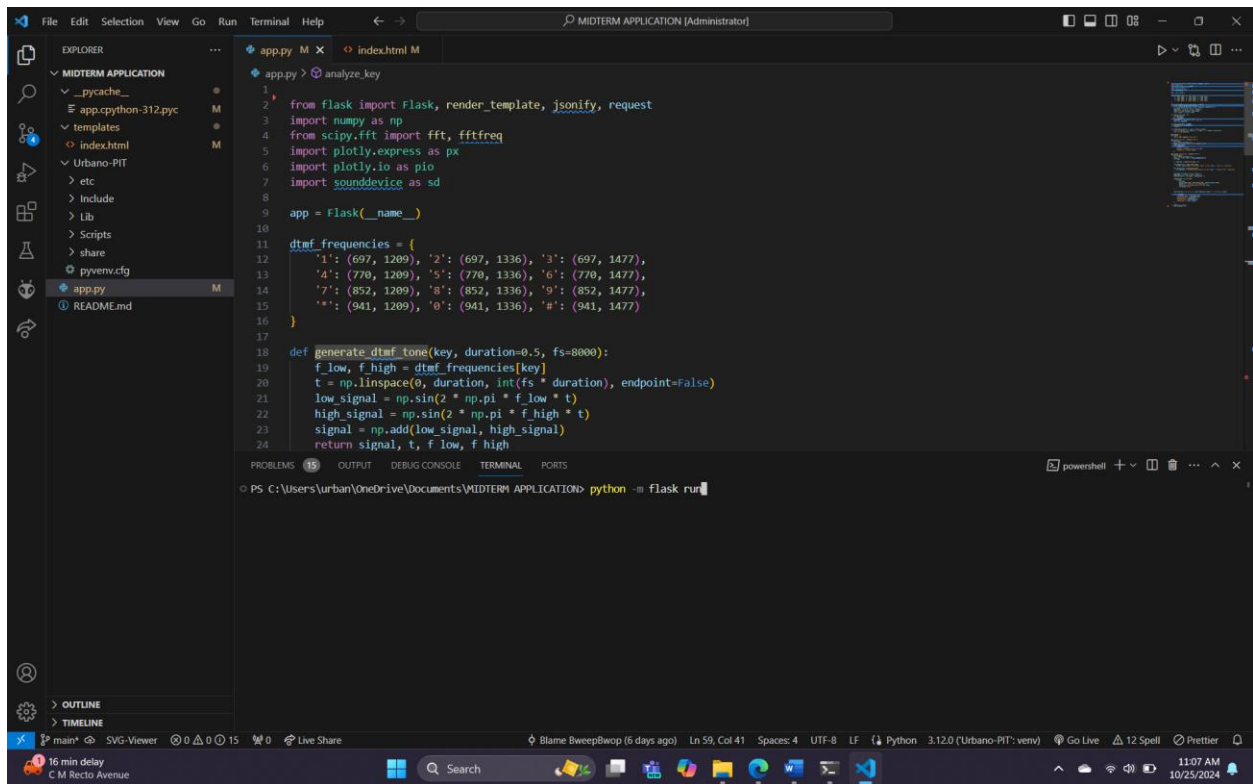


Urbano - Documentation:

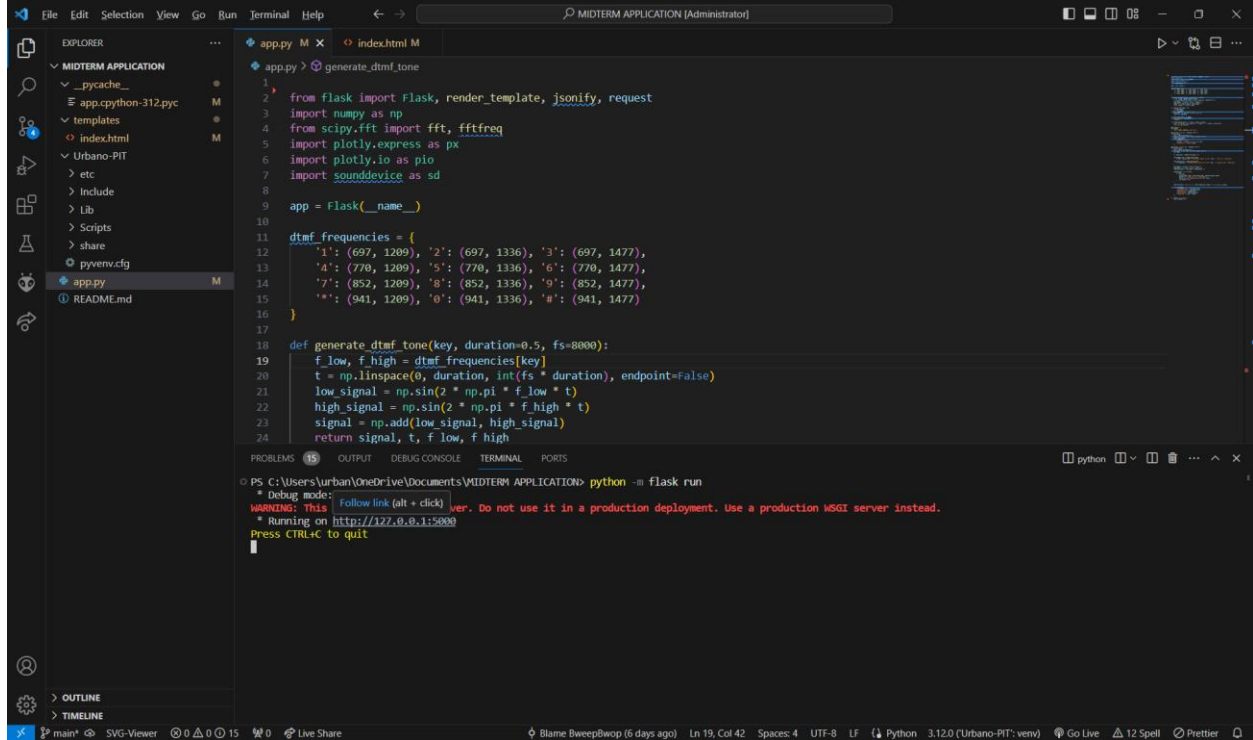


The screenshot shows the Visual Studio Code editor with the file explorer on the left displaying the project structure. The main editor window shows the `app.py` file with the following code:

```
1 from flask import Flask, render_template, jsonify, request
2 import numpy as np
3 from scipy.fft import fft, fftfreq
4 import plotly.express as px
5 import plotly.io as pio
6 import sounddevice as sd
7
8 app = Flask(__name__)
9
10
11 dtmf_frequencies = {
12     '1': (697, 1209), '2': (697, 1336), '3': (697, 1477),
13     '4': (770, 1209), '5': (770, 1336), '6': (770, 1477),
14     '7': (852, 1209), '8': (852, 1336), '9': (852, 1477),
15     '*': (941, 1209), '0': (941, 1336), '#': (941, 1477)
16 }
17
18 def generate_dtmf_tone(key, duration=0.5, fs=8000):
19     f_low, f_high = dtmf_frequencies[key]
20     t = np.linspace(0, duration, int(fs * duration), endpoint=False)
21     low_signal = np.sin(2 * np.pi * f_low * t)
22     high_signal = np.sin(2 * np.pi * f_high * t)
23     signal = np.add(low_signal, high_signal)
24     return signal, t, f_low, f_high
```

The terminal at the bottom shows the command `python -m flask run` being executed, resulting in the following output:

```
PS C:\Users\urban\OneDrive\Documents\MIDTERM APPLICATION> python -m flask run
```

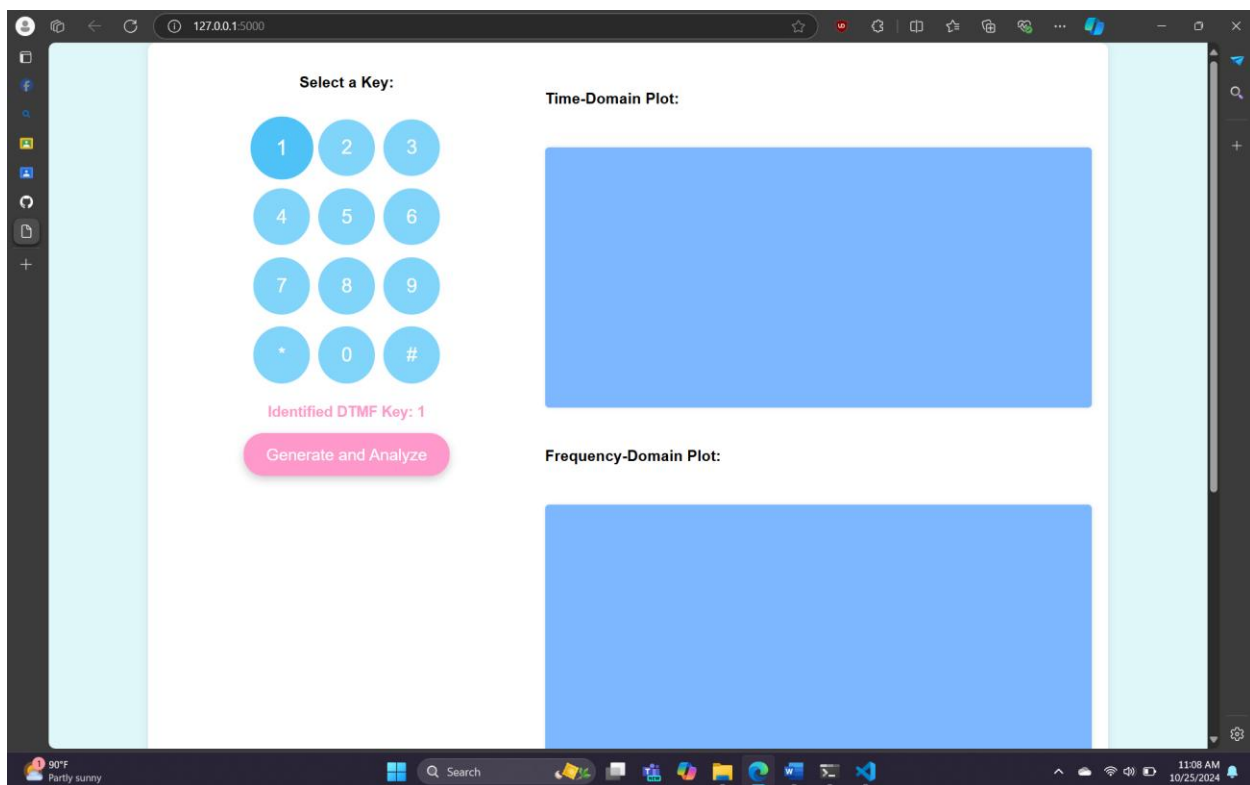
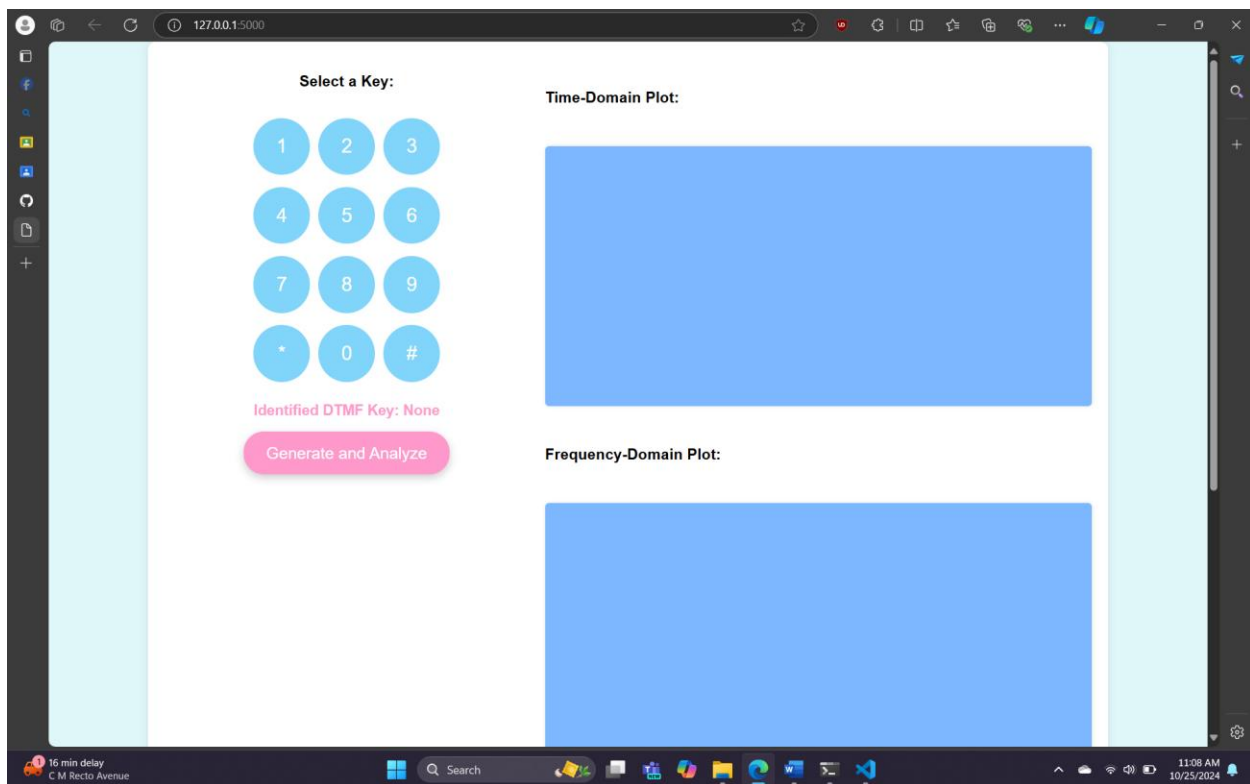


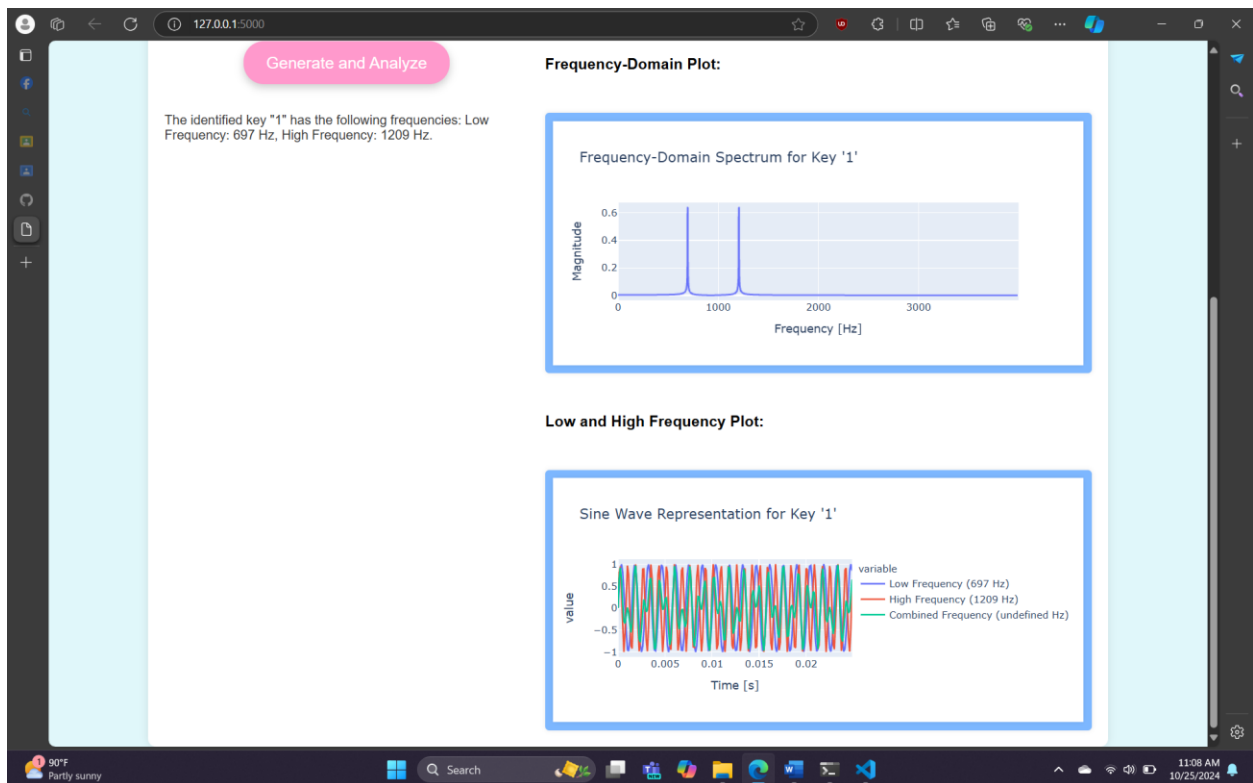
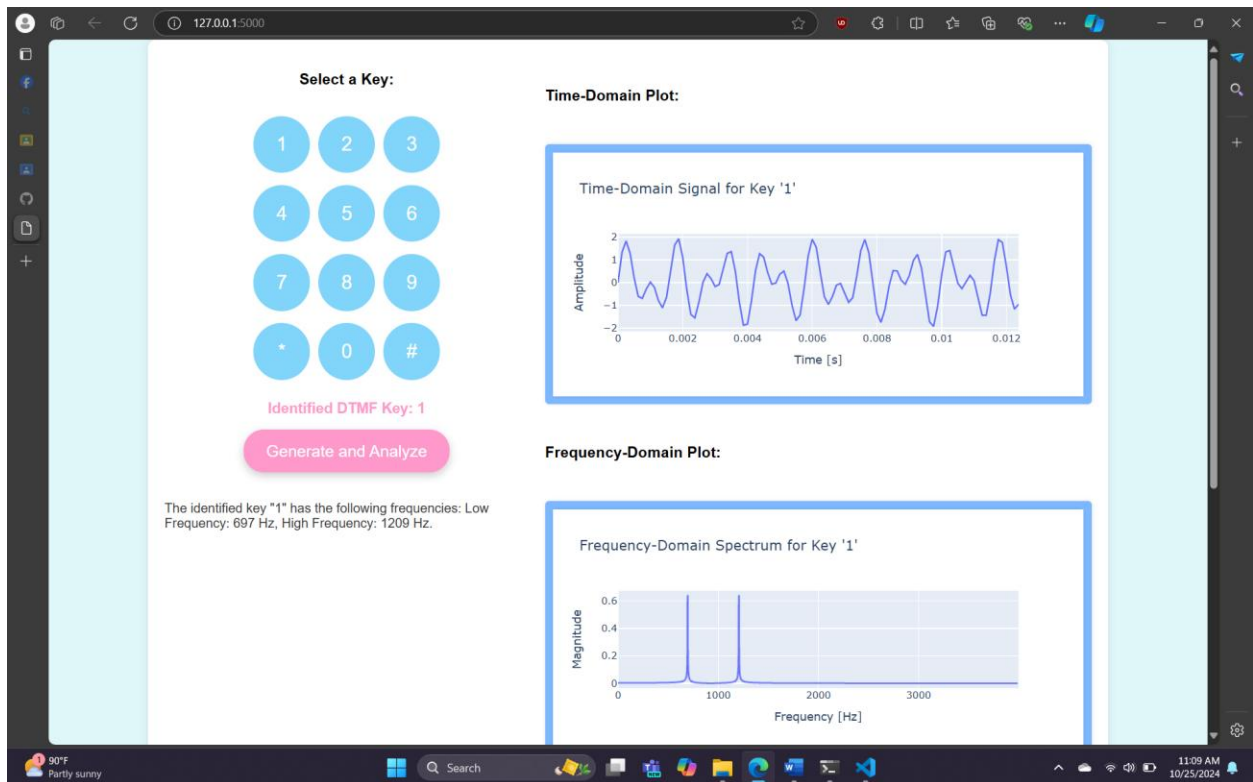
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24     return signal, t, f_low, f_high
```

The terminal at the bottom shows the command `python -m flask run` being executed, resulting in the following output:

```
PS C:\Users\urban\OneDrive\Documents\MIDTERM APPLICATION> python -m flask run
* Debug mode: on
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on http://127.0.0.1:5000
Press CTRL+C to quit
```





Another button:

