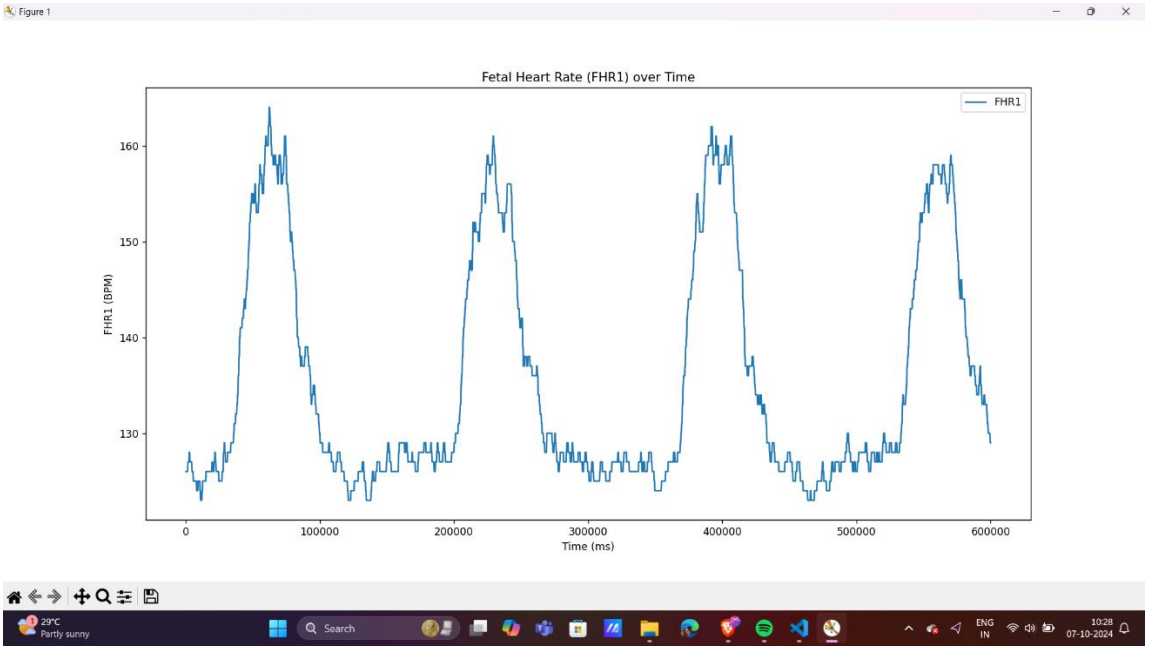
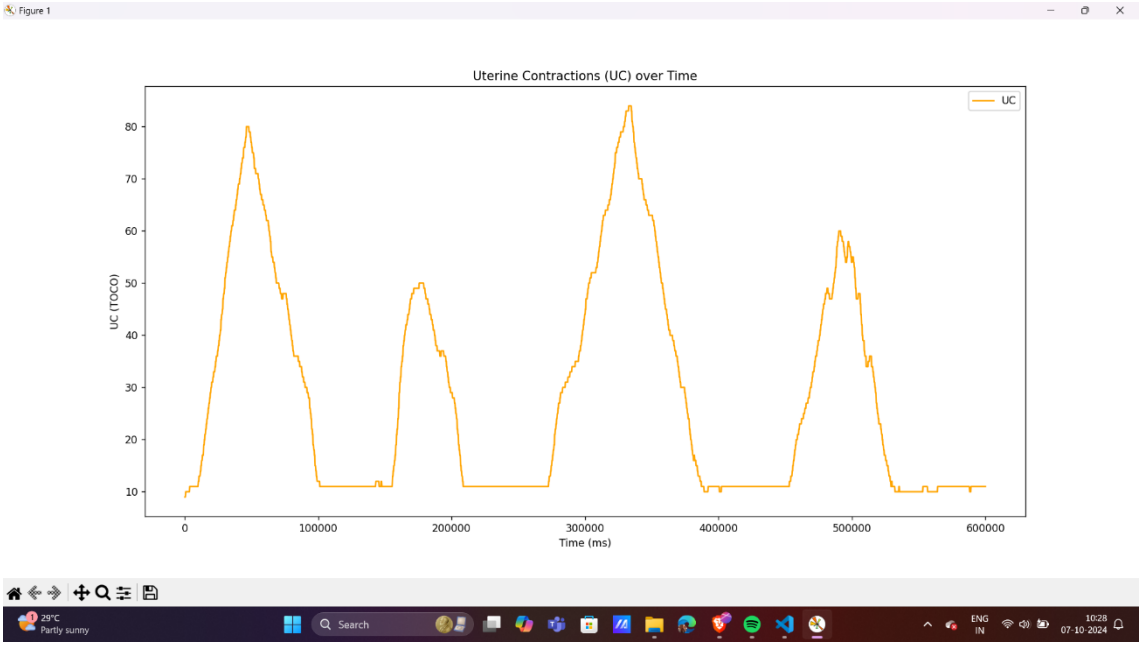
FHR and UC Data Analysis

1. Plotting Graphs:

- Time vs FHR: This graph illustrates the fetal heart rate over time.



- Time vs UC: This graph displays the uterine contractions over time.



2. FHR Analysis:

- The FHR data was divided into 3.75-second epochs (16 epochs per minute).
- For each epoch, the average FHR (in bpm) was calculated, and the pulse interval (in milliseconds) was computed using the formula:
    - Pulse Interval = 60000 / FHR.
    - The average FHR per epoch was:
      [126.73 bpm, 125.67 bpm, 124.47 bpm, ..., 130.87 bpm].
    - The pulse interval per epoch was:
      [473.44 ms, 477.45 ms, 482.06 ms, ..., 458.48 ms].

3. UC Peak Detection:

- Peaks in the UC data were detected using SciPy's peak detection method.
- The analysis revealed that there were 4 peaks with a width greater than 30 seconds.
- The average duration of wide peaks was:
  45.34 seconds.

4. Conclusion:

The analysis provides an overview of FHR behavior and UC patterns over time. Given the limited size of the dataset, no peaks wider than 30 seconds were detected. In real-world applications, utilizing larger datasets may yield additional insights into fetal heart rate and uterine contraction dynamics.