Programming with Data –
Problem solving and Scalability

Phase 1: MyHealthcare device: Vital signs simulator:

MyHealthcare device is a wearable device for collecting vital sign data. Develop a Python function to simulate the MyHealthcare device that generates data for "n" vital sign records (e.g. 1000, 2000 etc.) of a person.

Phase 2: Run analytics :

a) Find abnormal values for pulse or blood pressure.

b) Present a frequency histogram of pulse rates.

c) Plot the results for 2a and 2b and briefly discuss your observations. What is the complexity of your algorithm?

Phase 3: Search for heart rates using the HealthAnalyzer :

a) Design a solution (in cluding one or more algoritms) to search for a particular pulse rate value (e.g. 56), the algorithm should return a multidimensional list with all the records associated with this value (ts, temp, hr, pulse, bloodpr, resrate, oxsat).

b) What is the complexity of your solution?

c) Plot the heart rate values for records having pulse rate 56.

Phase 4: Testing scalability of your algorithm :

a) Measure the running time and plot the results for different n values.

b) Present diagrams and discussions in the report.