

# *Health Summary Linked List Implementation.*

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*Heart disease is one of the more prevalent chronic diseases in the US. Usually when on visits to the hospital I holds a summary of your last several visits of your vitals, this involves age, blood pressure, cholesterol etc.*

*In this project you will utilize a linked list data structure. But instead of each node containing an integer. Each node will contain members*

*Double Chest Pain*

*Double Ca*

*Double Thal*

*Double Thalach*

*Double Heart Disease Score*

*Double Age*

*This Node will be used to calculate your heart rate susceptibility.*

*Difference Between this and regular linked list implementation*

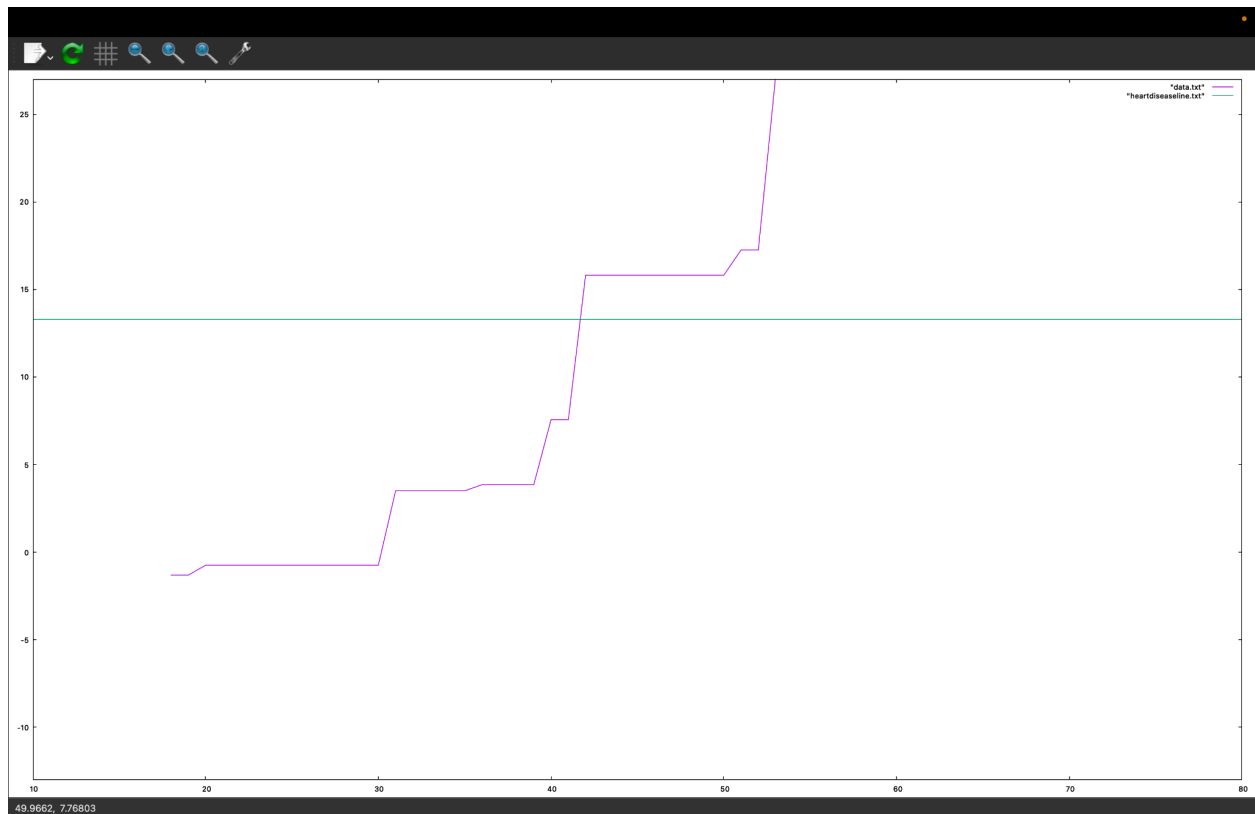
- 1. For append make sure the max amount of nodes is 75.*
- 2. Each Node has a heart disease score based on chest pain, ca, thal, thalach, and age.*
- 3. The minimum age for each node is 18.*
- 4. Linked List is sorted by age.*
- 5. Utilizes C++ fstream library to write txt files of age and heart disease score in this format.*

18 14.9

19 14.2

20 15.3

6. Uses gnuplot library to plot heart rate accessibility as a person ages.



ONCE THIS CROSSES THE LINE ACCORDING TO MY PYTHON PROGRAM MEANS MOST LIKELY YOU ARE AT HIGH RISK OF HEART DISEASE.

Installing GNUPLLOT LIBRARY

MacOS terminal commands

Install homebrew through terminal

## Instructions

[MacOS and Linux](#)

## Windows

To use gnuplot in terminal  
Type

gnuplot

To plot .txt file

```
Last login: Mon Jun 23 01:42:44 on ttys024
harrisonyeboah@Harrys-MacBook-Air-3 ~ % gnuplot

  G N U P L O T
  Version 6.0.3 patchlevel 3    last modified 2025-06-01

  Copyright (C) 1986-1993, 1998, 2004, 2007-2025
  Thomas Williams, Colin Kelley and many others

  gnuplot home:      http://www.gnuplot.info
  faq, bugs, etc:   type "help FAQ"
  immediate help:    type "help"  (plot window: hit 'h')

  Terminal type is now qt
gnuplot> set title "Heart Disease Graph"
gnuplot> set xlabel "Age:"
gnuplot> set ylabel "Score"
gnuplot> plot sin(x)
qt.qpa.fonts: Populating font family aliases took 152 ms. Replace uses of missing font family "Sans" with one that exists to avoid this cost.
gnuplot> █
```

Instead of plot sin(x) you would type **Plot “data.txt” with lines,**  
**“heartdiseaseline.txt” with lines**

**S- Level: Everything in A Level, but must be sorted.**

**A Level- Properly documented with preconditions and postconditions, properly broken down into functions. Contains file tests that test all possible cases.**

**Linked List max value being 75 nodes, correctly plots and calculates heart disease prob score. Successfully plots the summary as the person ages with titles along with x axis title and y axis title. Contains 5 out of 6 of the differences between this and the regular linked list implementation list. (DOES NOT HAVE TO BE SORTED)**

**B - Level - Properly documented with preconditions and postconditions, and broken down into functions. Contains test files that accounts for all possible test cases. Contains 4 out of 6 of the differences between this and a regular linked list implementation list. Plots on GnuPlot but does not include header title and x and y axis label.**

**C- Not properly documented with no test files and proper plotting. Utilizes less than 4 out of 6 of the differences between this and regular linked list implementation.**

**D- Program not broken into functions at all. No tests. No documentation. No test files. Program does not work. Does not plot at all.**