SYSTEMS PROGRAMMING: PROJECT SUBMISSION

Date: 6th May, 2021 202012043

PROJECT TITLE: DATA MONITOR FOR FORMULA-ONE CARS

- THE GOAL OF YOUR PROJECT:
  - To get Real Time statistics and vitals like Tyre Age, Fuel left in the car, etc., which will be used to anticipate and plan the next step to win the race, or at least improve the performance.
- REQUIREMENTS LISTED AS BULLET POINTS:
  - Name of the car
  - Engine Size (In terms of CC)
  - Weight of the car (In Kilograms)
  - Type of the tyre used (Soft, medium or hard)
  - Entering the Circuit Details (Name of File)
  - To have those txt files with data in each line about that particular segment. (In meters)
  - Size of the Race (In terms of Laps)
- ANY ASSUMPTION YOU MAY HAVE MADE:
  - Calculations related to speed, tyre and fuel are done on the basis of taking specific values as ideal. Thereby, calculating the values ahead while keeping those ideal values as calculating norms.
  - Calculations will be done for one car at time.
  - Data won't be stored for further comparing it with next calculations (here, cars).
  - Some of the data is hard coded just because taking user input might lead to elicit conversion or throwing exception at some point when program is executed.
  - Error will be thrown if the tyres/fuels run out of capacity and system will crash if the warning won't be taken seriously, the system will shut down (here, the car will crash/stop).
  - No option of refuelling or changing tyres is available.
- SYSTEM PROGRAMMING TOPICS USED:
  - FILE I/O:
    - For reading the segment data for each lap
  - THREAD PROGRAMMING:
    - To Calculate Speed, Tyre Age and Fuel Capacity simultaneously
  - SIGNALS:
    - One could get Real-Time Speed Analysis (By using CTRL+C).
    - Also, System will throw signal if Tyre or Fuel is running low.
  - MAKEFILE:
    - Could have Implemented this but wouldn't have made much sense for one simple command.
  - C PROGRAMMING:
    - Whole System is build using C Programming and its functionalities which will run between 3 files (1 header file: for function declarations, 1 C file: for function definitions, 1 C file: this contains main).