1. Design and implement a graphical simulator that simulate jobs or processes on an Operating System. The operating system should implement a pre-emptive Priority scheduling algorithms. Therefore a user (who is going to represent an application) should be prompted to add a job , arrival time, priority and turn around time of that job. Your simulator would represent a job as a rectangle labeled with queue position ,Turn around time(Time to process) and priority number. When a new job arrives with a highest priority , your simulator should show the rectangle of the new job moving to the front of the queue.
2. Look for a Dataset from a bank(online datasets) , this dataset should have demographic information and other details about their customers. You should write a program that analyse the dataset using pandas library and draw decisions tree diagrams or graphs showing how variables like (age, gender, loans etc.) affect any two of the following 1) membership of those customers in that bank , 2) The rate of applying loans , 3) How capable are they in paying back loans 4) How much are their balances (which age group/gender have a lot of money).
3. Look for datasets of course work and exams with students information such as (gender, age, parents alive or not, when did the students pay their fees, how much was the student's course work, did he/she stay on campus , what was the student's entrance qualification etc.). Using statistical formulas determine which among these variables determine the pass rate of the student's course work or examination mark. Plot some graph using pandas library.
4. Create a **word-ladder puzzle** solver application, that is used to show how shona and english words can be transformed into other words. The application should show stages of transformation.
5. Make an application like Google Maps - You can use **Dijkstra's algorithm to find the shortest paths, A* Search for more efficient & real time use.**
6. Use a string compression algorithm, like Run Length Encoding or Huffman Coding, devise your own algorithm to make a project on data compression.