EE21B013_week7

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1 How to run the code and the output

- I used python for solving the problem statement
- Solution is simple .py file attached.
- Open the vs code and run the python file attached with name sol.py
- You will get 3 figure as output
  - 1st fig : Plotting of Finding of minimum using **Annealing** using the Probablity function given in the presentation file:
    *
    $$P(\Delta E) = e^{-\frac{\Delta E}{kT}}$$
  - 2nd fig : Plotting of cities traversed in order to find minimum distance covered to travel all the cities for dataset **tsp_10.txt**
  - 3rd fig : Plotting of cities traversed in order to find minimum distance covered to travel all the cities for dataset **tsp_100.txt**
- After that you will get output in the terminal .
- After that you will get the output printed for problem 1 as :
  - `minma points and its value`
- Just below the output of first there is output for the **2nd** Problem statement for both the dataset **tsp_10.txt** and **tsp_100.txt**.

2 Code Explanation :

2.0.1 1. function find_min :

- For finding minima i made the function find_min :
  - It will take input parameter as :
    * func : the function over which annealing will be applied to find minima
    * bestx : starting point to start
    * decayrate : decay rate for applying annelaing
    * tempearature
    * the range of search space is defined inside the function as it is not given in the problem statement to take the range as input that's why i have defined the search space inside the function only.
    * there is nothing much to say about the code as it is same as it is given in the presentation file of the problem statement i have just encapsulated it inside the function.
    * The function return bestx and bestcost till the no of iteration defined found using annealing concept. ### 2. Function read_file :

- This function i made for reading a file and return the data inside the file in form of list. ### 3. Function find_min_cost_tsp :
- For solving the travelling salesman problem I made this function
  - Input parameters :
    - only the file name in which the **x** and **y** coordinates of the cities are given
    - It will read the datafile using the readfile method defined before and store the data accrodingly.