Report

1. The program use skit learn linear regression as regression function. The code has a designable while loop for the main iteration of the code. The exit from loop performed if the number of loop iteration is more then 10 (variable in the code is “proverka”) it provides the enough data for the train of regression function and if the formula (1) true 3 (variable in code is “glavnoe”) in a row.

$$\frac{\left|S_{i,T} - S_{curr}\right|}{\max(S_{i,T}, S_{curr})} < \delta \quad (1)$$

   The design parameters of code are T, δ, proverka, glavnoe. The T is the number of the stage in dataset. If T increase, then time of code increase significant because one of the hill climbing use the normal cost function which is the most time-consuming calculation. The “glavnoe”, increase and δ decrease the accuracy of the program.
2. The STAGE program is much faster then SA, because use the regression function as cost function to find the new starting point of iteration. The STAGE algorithms performed the 45 minutes instead SA that could performed hours. The enough trained regression function linearly directed to global minimum the function. The STAGE quality solution is little better than the SA, because of regression function, but if increase “glavnoe” and decrease the “δ” the result become better. The SA cost of finial design is 5355 and the STAGE cost of final design is 5297
3. The result of the HW3_2.py is the .csv files where the name of the file is traffic what was used, the header is task placement, and the data is link placement