**CAD Mini- project 2 Documentation**

**Floor-planning for sequence pair**

simulated annealing parameters:

1. Temperature : For simulated annealing Temperature is a very important parameter. In this code I have considered the initial temperature as 10,000 . Run time was an important parameter to decide the Temperature. I decreased the temperature to 400 to check values as well.
2. Final temperature: I started with initial final temperature as 0.001. Later went higher to 1 to adjust the run time
3. No. of steps per move: I think this is one of the most important parameter of SA as it is the one which decides and creates the randomness needed to traverse the entire space. I have considered no. of steps as 35.
4. Cooling schedule : The other important parameter which is instrumental in getting accuracy is cooling schedule. Initially I started with the cooling schedule as 0.95\*T. I translated the value to 0.75\* T.

**Algorithms used:**

I have used dynamic programming(LCS) as the backbone of my code. I have constructed vertical and horizontal constraint graphs using LCS.

**Simulated Annealing**

Simulated Annealing is the search engine here

I have tried creating this MATLAB structure to check my floor planning. I have also used your python script to check the code and have successfully did floor planning for all the test cases.

This are how blocks look for one of the iterations I did. Area : 248000 Run Time 0.45 sec

Lowest Area obtained : 239000

N = 10 hard blocks MATLAB file generated:

%\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

close();

rectangle('pos',[91,0,199,82],'Curvature',0.2,'Facecolor',[0 0 1])

rectangle('pos',[91,82,229,105],'Curvature',0.2,'Facecolor',[0 0 1])

rectangle('pos',[0,208,61,117],'Curvature',0.2,'Facecolor',[0 0 1])

rectangle('pos',[61,208,114,167],'Curvature',0.2,'Facecolor',[0 0 1])

rectangle('pos',[0,0,91,208],'Curvature',0.2,'Facecolor',[0 0 1])

rectangle('pos',[320,0,208,129],'Curvature',0.2,'Facecolor',[0 0 1])

rectangle('pos',[562,196,123,108],'Curvature',0.2,'Facecolor',[0 0 1])

rectangle('pos',[175,187,235,179],'Curvature',0.2,'Facecolor',[0 0 1])

rectangle('pos',[410,129,152,193],'Curvature',0.2,'Facecolor',[0 0 1])

rectangle('pos',[562,0,126,196],'Curvature',0.2,'Facecolor',[0 0 1])



Fig : Floorplanning for block size = 10

Iteration : 2

Area : 241863



Area : 246791



Soft blocks n = 10:

Area : 238008

Run Time : 0.9428 sec



Hard Blocks n =30 :: Area n = 305025



Soft Blocks n = 30

Area = 303102

Run Time : 1s



Hard soft blocks n = 50

Area = 314118 Run Time : 0.83sec



Soft Blocks n = 300

RunTime:1.8025

Hard Blocks n =300

Run Time = 1.802s

Area = 557052

Graphs Plotted

1)Temperature versus iteration

2) Cost versus iteration

% moves accepted versus Temperature : Axis initiated from 0

