progress

algorithm analysis

[x] psedo code of optimize() ✅

- analysis (psedo code + complexity) of optimize() main loop is 70% completed.

- operations analysis
  [x] premerge ✅

  - area/trip level
    [x] swap_area ✅
    [x] combine_trip ✅
    [x] exhaust_trip ✅

  - hotel/booking level
    [x] syphoon booking ✅

    ☐ taxi_split (need help to understand)
      [x] swap_hotel ✅

#TODO:
polish and push to github

case analysis

[x] case 1 53 55 77 ✅
[doing] 3 other cases

algorithm improvement

- see 'local search algorithm draft.md'

- 2-step local operations: Based on the analysis of case 1, we might want to add 2-local operation. for example, for swap area, we might want to repeat swap area twice to generate candiates then choose the best.
- [discussion] add swap booking: based on case 1, it seems that a constructed variant of case 1 could create trouble for our production model due to lacking of swap booking (see case 1 53 55 57.md disctussion section)

formalization

[x] formalization1 ✅ set covering + segmentation
[x] formalization2 ✅ variant of CVRP
[x] formalization3 ✅ variant of CVRP

#TODO
[] add graph to formalization 2 & 3
[???] formalize validation constraints, i.e. all the testing functions in code base and trip.feasible() (around 20-30?)