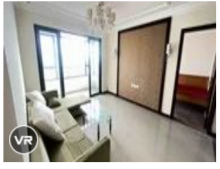
Homework3-1: Data Mining

- Housing Price Data from https://esf.fang.com/
- Housing Rent Data from https://zu.fang.com/
- Data needed: listed below



A区双卫户型,业主急用钱!捡漏的来!!!

3室2厅 | 118㎡ | 顶层（共26层） | 南北向 | 2017年建 | 杨婷玉

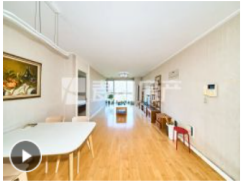
京北恒大国际文化城 怀来 八达岭高速沙城东出口东约3公里

满五

45万
3813元/㎡

Homework3-2: Data Mining

默认排序 按发布时间排序 价格 面积 合并相似



国际村性价比正规三居室,南北通透,高层采光视野好,价

整租 | 3室2厅 | 139㎡ | 朝南北

朝阳-西坝河-UHN国际村

距10号线太阳宫站约585米。

交通便利 南北通透 采光好

14500 元/月

Homework3-2: Data Mining (Group)

- Team 1 北京-海淀 I：苏州桥、万柳、北太平庄、世纪城
- Team 2 北京-海淀 II：西三旗、清河、西二旗、上地
- Team 3 河北（京北）：怀来、下花园、张北、桥西
- Team 4 河北-廊坊+北京-通州：大厂、燕郊、马驹桥、亦庄
- Team 5 北京-昌平: 沙河、霍营、回龙观、天通苑
- Team 6 天津：中新生态城（滨海新区）、武清、劝业场（和平）、八里台（南开）
- Team 7 重庆-渝北：（Please choose your own blocks）

- Each person only in charge of **one block** and only get first 20 pages if too many for you

Homework3-3: Data Research (Your Own)

- Collect Data from your teammates and merge the data (please feedback to TA if someone no response, so we can help both team and other student)
- Data description of your data and whether data has outliers
- Then get housing price per m2 and housing rent per m2 ($price/m2$ and $rent/m2$) for each block
- 1) Data description for each block, any outliers?
- 2) Calculate median price to rent ratio for each block
- Figure A: Bar Plot the median price to rent ratio for each block (The global fair value should around 200)

Homework3-4: Data Science Modeling

- Model 1 $price/m2_i = \beta_0 m2_i + \beta_2 location_i + \epsilon_i$
- Model 2 $rent/m2_i = \beta_0 m2_i + \beta_2 location_i + \epsilon_i$
- Use model 1 and model 2 to predict price and rent for all your data and calculate price to rent ratio for each data.
- Figure B: Bar Plot the median price to rent ratio for each block

Homework3-5: Data Science Modeling Pro Max

- Add features non-linearity and interaction to Model 1 and Model 2, then get Model 1+ and Model 2+. Compare with R2 of Model 1, Model 2 vs Model 1+ , Model 2+. Which one has higher R2 and why?
- Use model 1+ and model 2+ to predict price and rent for all data. Calculate price to rent ratio for each data.
- Figure C: Bar Plot the price to rent ratio for each block.
- Compare the price to rent ratio from these three methods. Which one should you trust based on sample size?

Homework3-6: Submission

- Submission: only Ipynb codes to your personal folder's subdir HW3_My_Data_My_Model
- NO DATA PLEASE, Git is for codes not for data
- Replicable: TA can run your codes with one click