The Kickstarters

Kickstarter Data Analysis Result

Presented by:

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Outline

- Introduction
- Algorithms
- Data Analysis
- Data preprocessing
- Evaluation
- Conclusions

- What is Kickstarter and What Do People Use it for?
  - Fundraising platform for entrepreneurial projects
  - Entirely driven by crowdfunding

- Two Types of Users:
  - Creators - start a project hope to raise funds from backers
  - Backers - have the opportunity to receive rewards

- 'All or Nothing' Rule - Defines if project is successful
  - A creator can only collect the funds if the funding goal has been reached by the deadline (pledged >= goal).

- Question: What Makes a Successful Kickstarter Project?
  - Not all projects have succeeded

- Kaggle Dataset Generated by Web Robots
  - Range from 2009 to 2017
  - 56MB with 99,035 project records
  - 54 attributes with all kinds of categories
    - Location, time, name, pledge, goal, etc.,

- Need to Reduce Features to Generalize the Dataset
  - Some important features contribute to success!

Motivation

Algorithms

Depends on the Target Field

- Project's Status
  - Successful, Failed

❖ Classification Problem:

➢ SVM
- efficient in high dimensional data

➢ Decision Tree
- handle both numerical and categorical data

- Amount of pledge in $
  - pledgedUSD

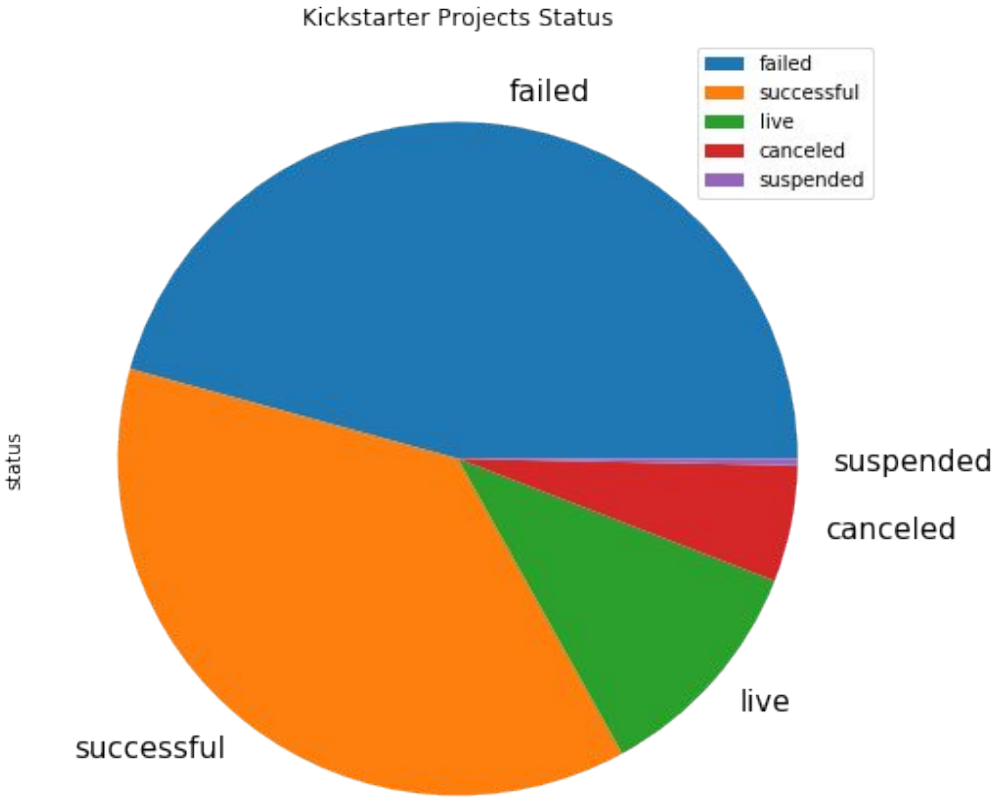
❖ Regression Problem:

➢ KNN-Regression
- works well in high non-linear data

➢ MLPR
- generate non-linear function approximator

Data Analysis- Status Distribution

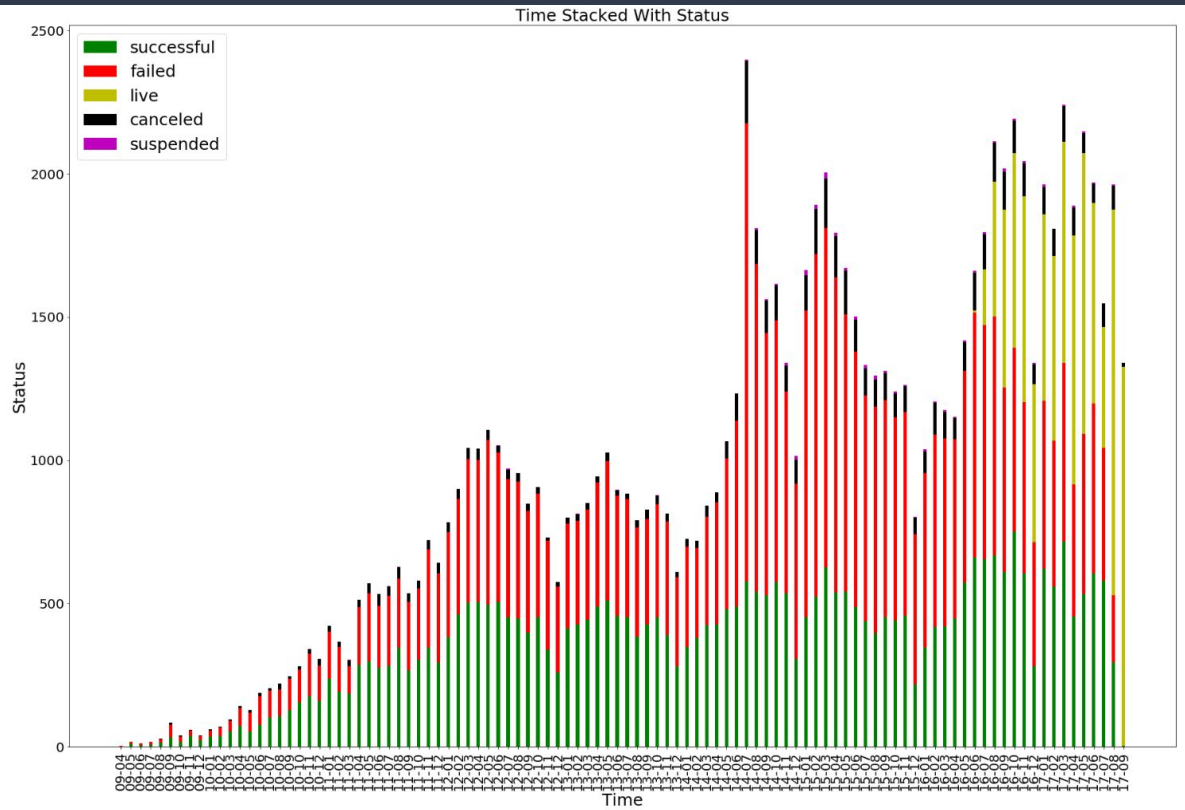
- Around same percentage towards success and failure
- Many canceled in the process



Data Analysis- Projects' Time Distribution

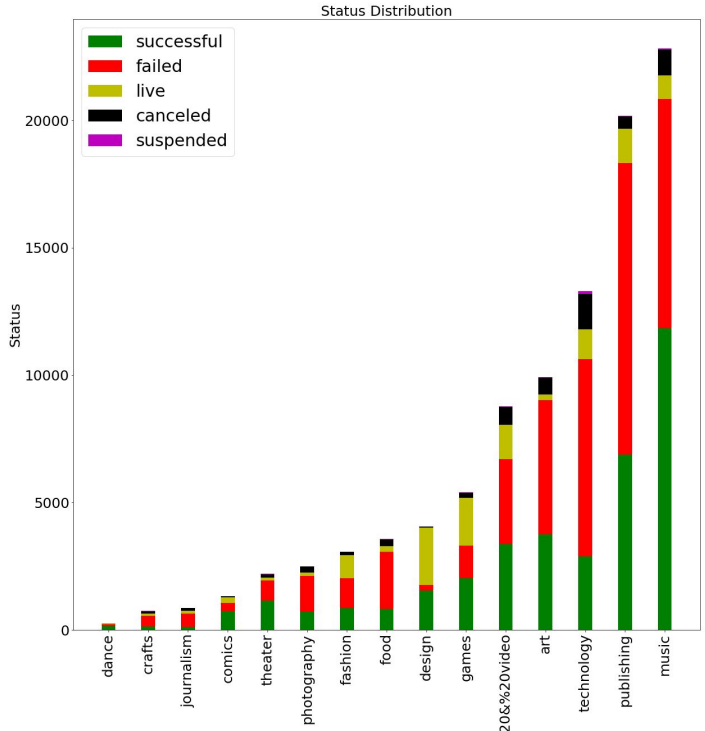
- From 2009 to 2017
- By month

Project launch time is "irrelevant" to a project's success

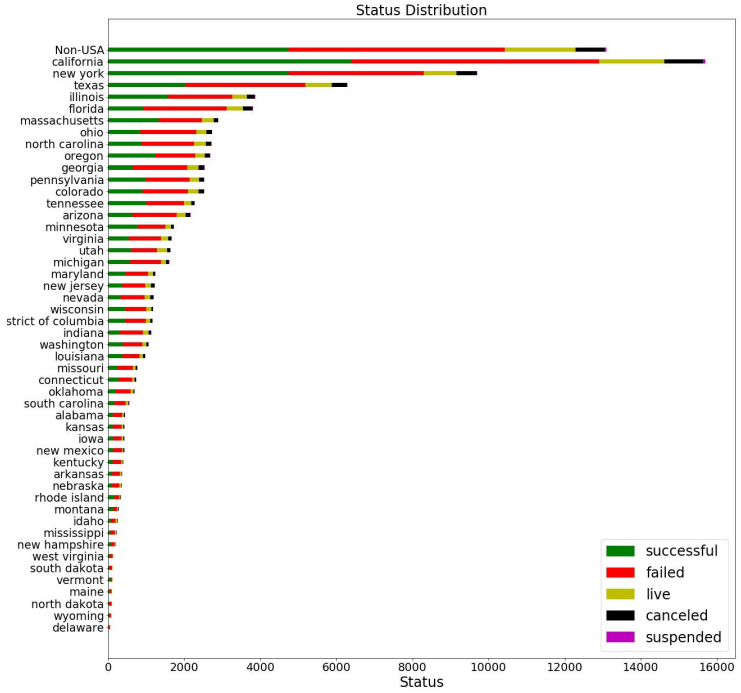


Data Analysis- Status Distribution

By Category

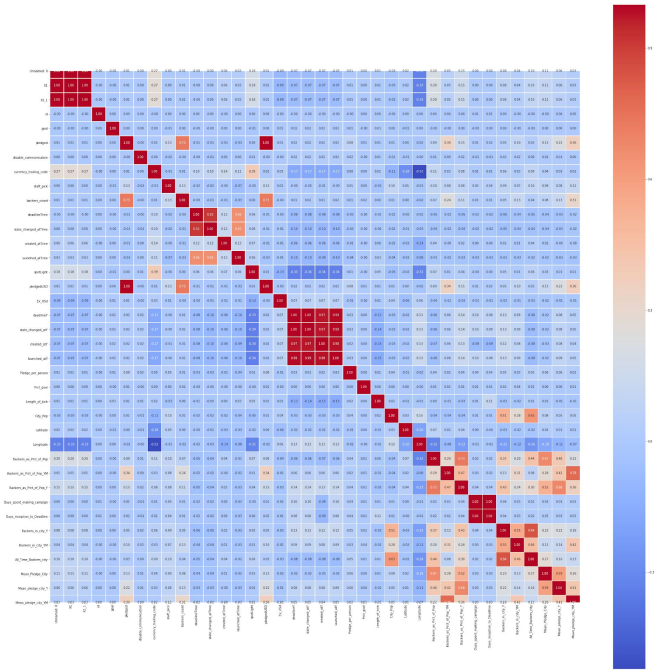


By States of the U.S.



Data Preprocessing

- Data Cleaning
  - Missing value replacement
- Feature Selection
  - Correlation Map
    - Correlation of each pair
    - Drop all “highly correlated” attributes
  - Combine Features
    - New Features Generation
  - Encoding Features
    - Categorical to numerical
  - Standardization
    - Z-score



Evaluation (Classification)

SVM:

50.9% accuracy (normal)

SVM classification report

	precision	recall	f1-score	support
0	0.50	0.22	0.31	8862
1	0.51	0.79	0.62	9147
accuracy			0.51	18009
macro avg	0.51	0.50	0.46	18009
weighted avg	0.51	0.51	0.47	18009

Decision Tree:

98.2% accuracy (overfitting)

	precision	recall	f1-score	support
0	0.98	0.98	0.98	8862
1	0.98	0.98	0.98	9147
accuracy			0.98	18009
macro avg	0.98	0.98	0.98	18009
weighted avg	0.98	0.98	0.98	18009

Evaluation (Regression)

KNN:

RMSE at 0.4923, MSE at 0.24244

```
Final rmse value is = 0.492384989879356 36
Final mse value is = 0.24244297825849387
```

MLPR:

RMSE at 0.4994, MSE at 0.24945

```
Final rmse value is = 0.4994591341480117
Final mse value is = 0.24945942668388152
```

Conclusions

- Things Worked:
  - Visualizing dataset gives a general picture of each attributes
  - Selected models gives satisfactory prediction
  - Cross validation with proper model parameters
- Things Didn’t Work Well:
  - Real evaluation of successful, failed prediction
  - Evaluation of feature selection and transformation

Q&A

Thank You!


Energy
different'
Make
Picture
Square
Gave
Matcha
Productions'
Brett
Focus
Decisions
Boards'
Better
Sunglasses
Entertainment
Rustic
Alkandros
Futurewear
Alzheimer
Local
Homemade
EP
Shake
Pheonician
Relief
Flavor
Australia
Stress
Wiscons'
motive
Difficult