

STARTUP SUCCESS PREDICTOR

Goh Yan Da | DSI 33

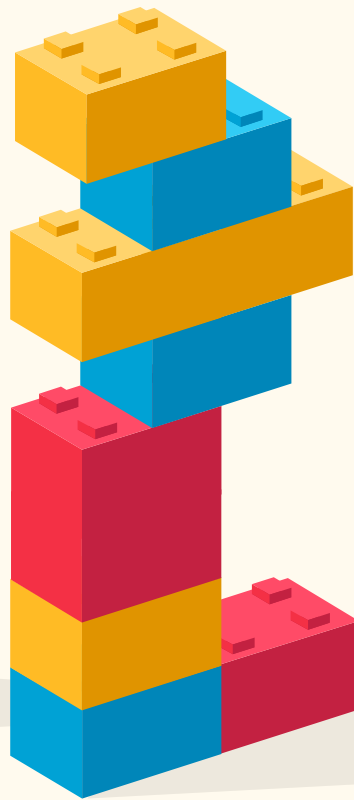
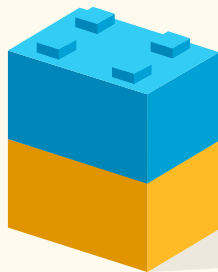
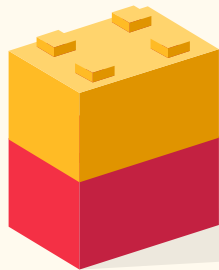
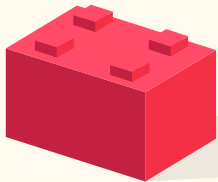


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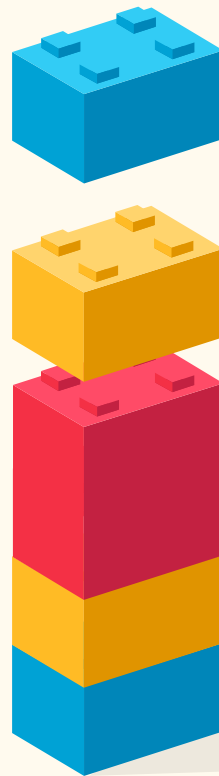
DATASET

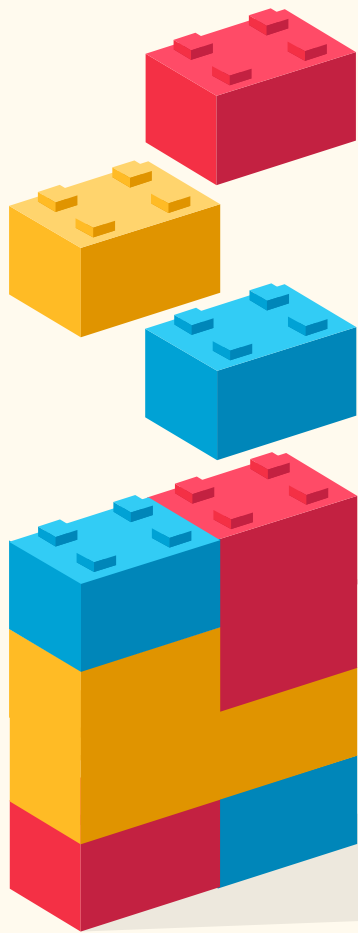
03

**EDA &
MODELING**

04

CONCLUSION





HOWDY!

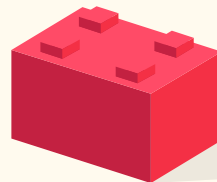
Goh Yan Da | 27

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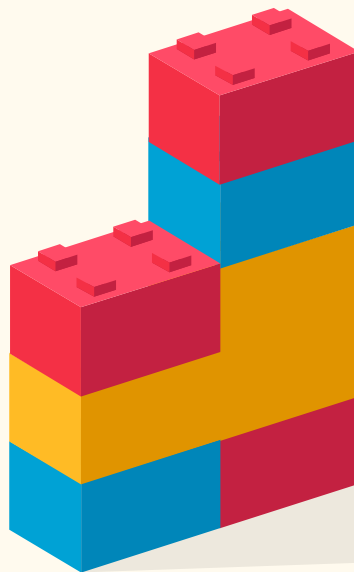
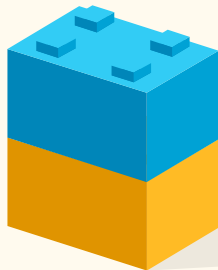
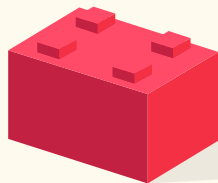
<https://www.linkedin.com/in/yandahere/>

Github: <https://github.com/Yandahere>



01

BACKGROUND

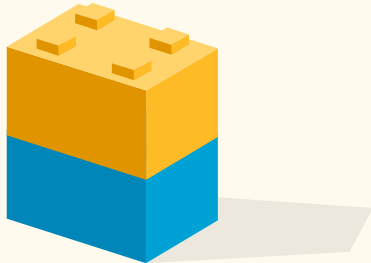


WHY SINGAPORE?



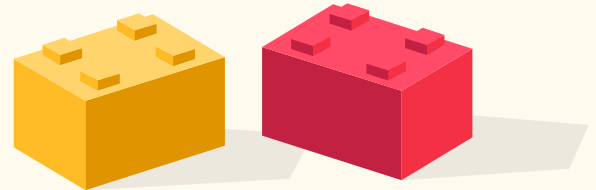
RANKED 1ST

In global startup
talent



NURTURING ECOSYSTEM

Government support
local startups.

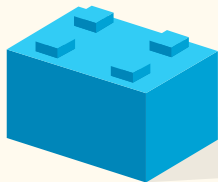


STARTUP SG

Startup Sg is an online website for new prospective startups and investors to meet one another.



Investors and prospective entrepreneurs are always looking to optimize time and resources.

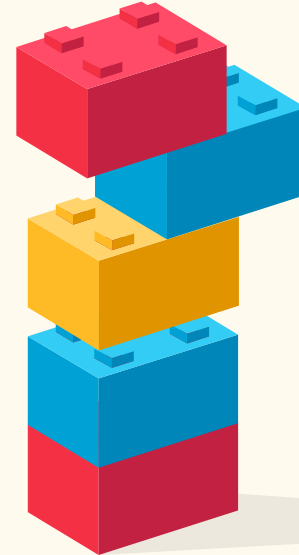
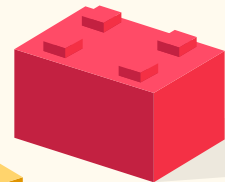
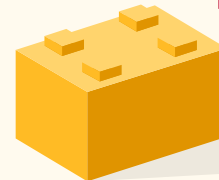


4,377

Startups

515

Investors

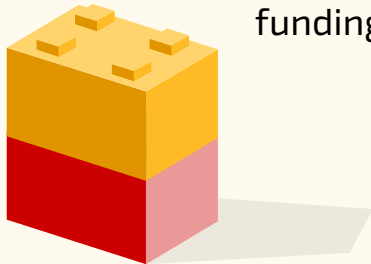


NURTURING ECOSYSTEM



128 COMMERCIAL BANKS

Service regional
activities and secure
funding



HASSLE FREE SETUP

Register your
business on ACRA
Be aware of
regulations in
Singapore



SUPPORTIVE GOVERNMENT

21 free trade
agreements (FTAs)
with 27 economies
and 76 comprehensive
avoidance of double
tax agreements
(DTAs)

WHAT MAKES A **SUCCESSFUL** STARTUP?

Branding & Marketing
Communication strategy

Ideation
An adaptive business model to accommodate to market demand



Goals & KPIS
Proposed timeline with reasonable goals
Backing & Funding
Strong connections and investors to back up

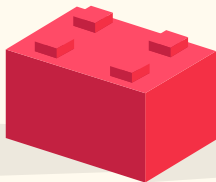
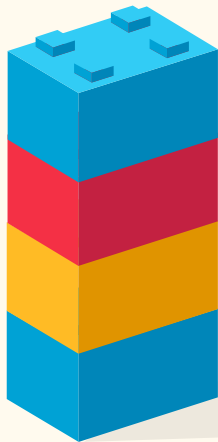
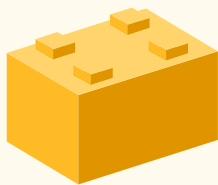
SINGAPORE'S UNICORN



Reseller

Very first item sold was a E-kindle worth \$75
\$1.1 Billion

COMMON CHALLENGES



ACCESS TO FUNDING

Hesitant investors

INTENSE COMPETITION

Singapore's home to
large amount of start
ups

TALENT ATTRACTION

Attracting and securing
top talent (influencers)

OPERATING COSTS

Singapore high living
costs



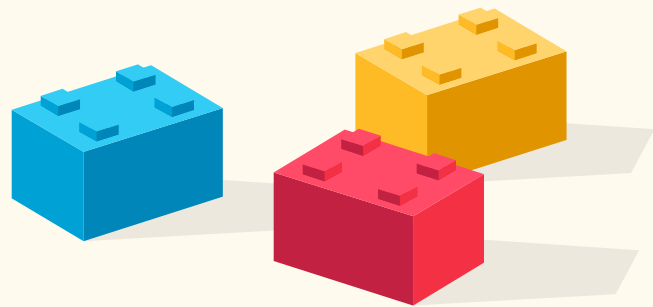
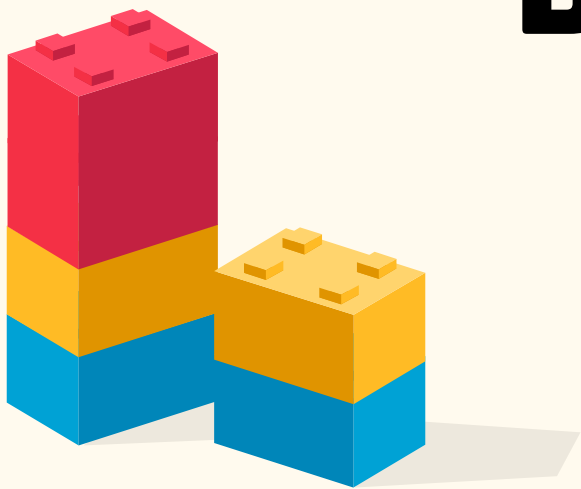
**WHAT'S THE
PROBLEM?**



**NURTURING
THE NEWEST UNICORN IN A SEA OF
STARTUPS CAN BE CHALLENGING TO
EARLY START UPS AND NEW
INVESTORS. WHAT CAN INVESTORS
AND ENTREPRENEURS LOOK OUT FOR
TO PREDICT A SUCCESS OF A
STARTUP?**

02

DATASET

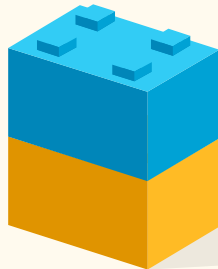


OVERVIEW OF DATASET



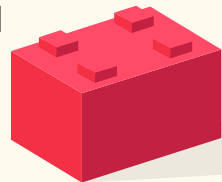
US HISTORICAL DATA

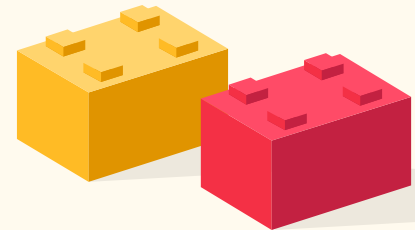
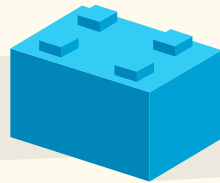
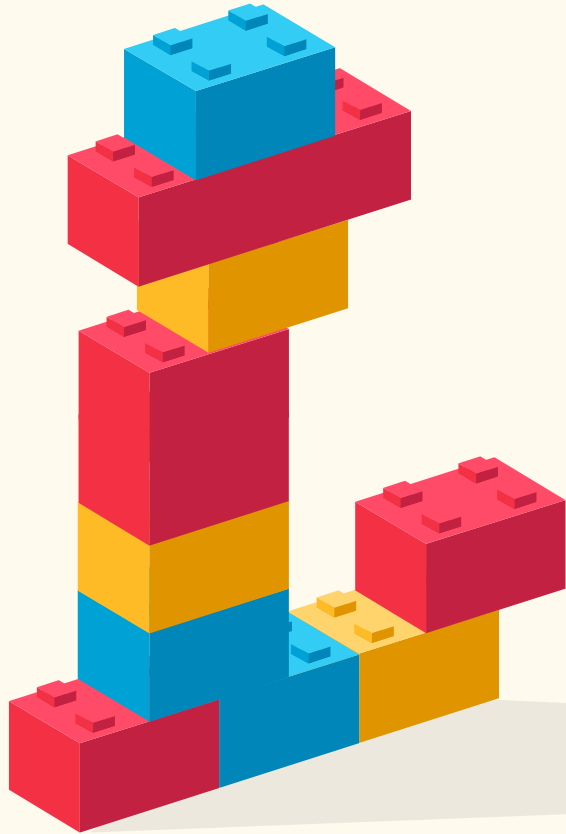
48 Features
(funding rounds, funding
total, category code)
Data collected from 2000 to
2010 period



'STATUS'

If a startup is successful, it
is acquired.
A failed startup is closed

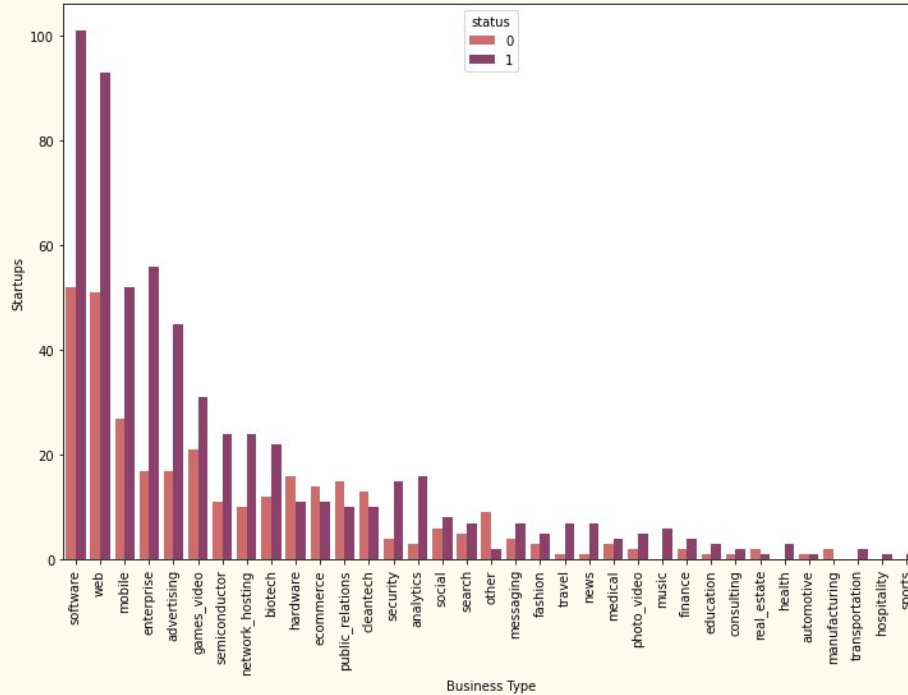




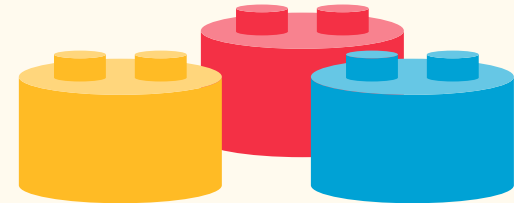
03

EDA & MODELING

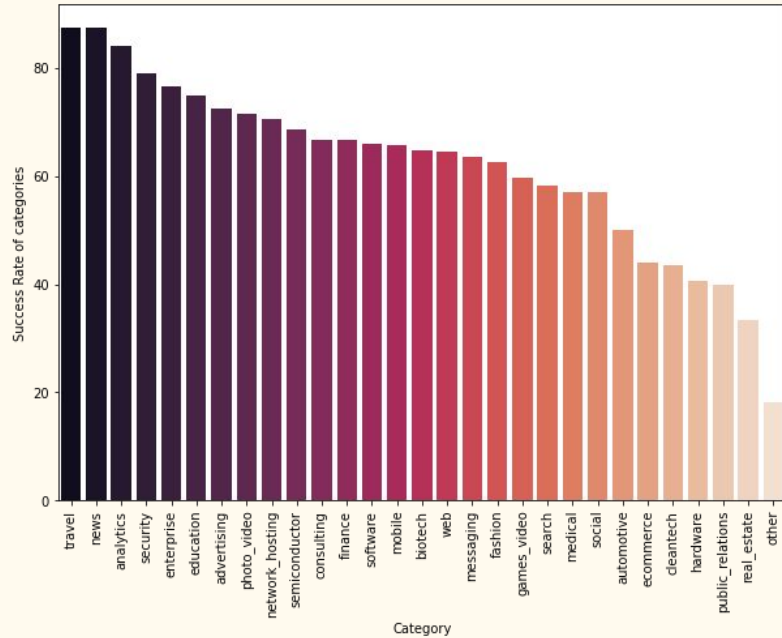
SUCCESS COUNTS **BASED ON CATEGORIES**



Top 3 most common startup business types are software, mobile and web.



SUCCESS RATES BASED ON CATEGORIES

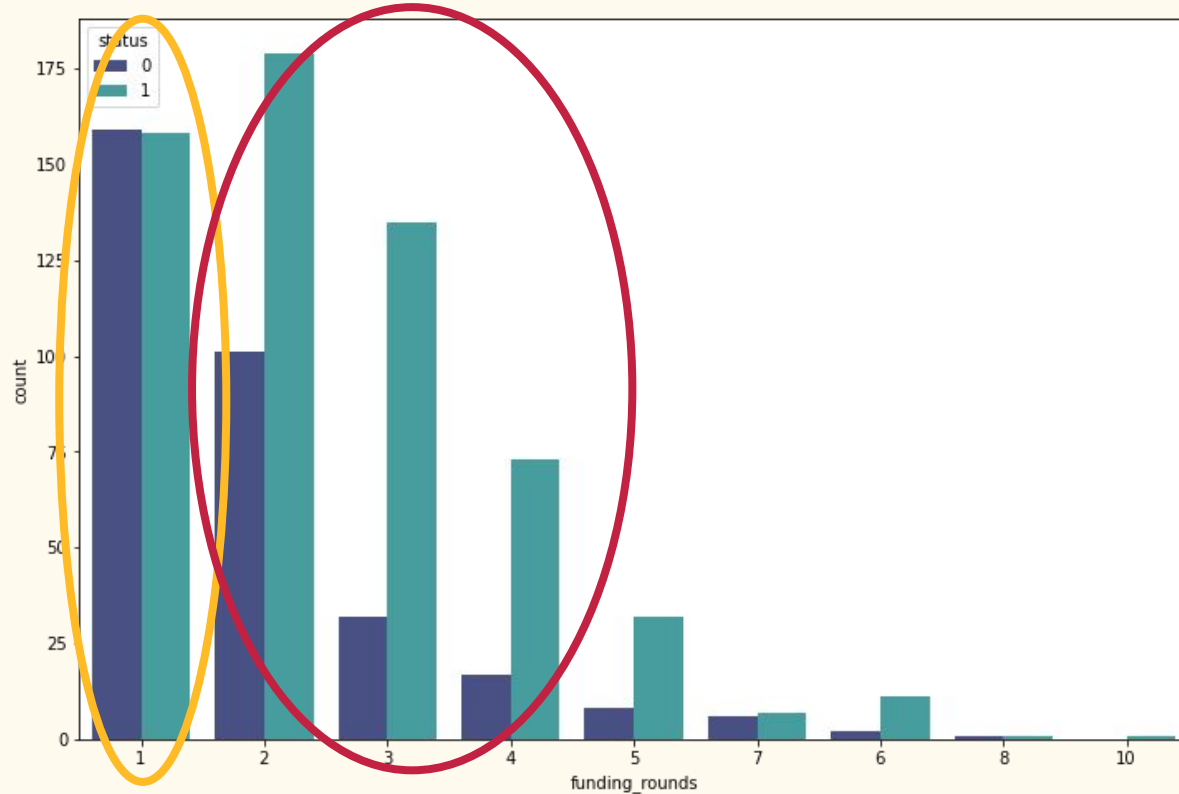


	category_code	total_success	total_closed	total_startup	success_rate
27	travel	7	1	8	87.50
17	news	7	1	8	87.50
1	analytics	16	3	19	84.21
23	security	15	4	19	78.95
8	enterprise	58	17	73	76.71
7	education	3	1	4	75.00
0	advertising	45	17	62	72.58
19	photo_video	5	2	7	71.43
16	network_hosting	24	10	34	70.59
24	semiconductor	24	11	35	68.57
5	consulting	2	1	3	66.67
10	finance	4	2	6	66.67
26	software	101	52	153	66.01
15	mobile	52	27	79	65.82
3	biotech	22	12	34	64.71

In terms of success, travel, news and analytics are the more common successful categories. However, further investigation shows that this is influenced to the low number of startups. The success rate for the top 3 common startups are:

1. Software: 66.01
2. Mobile: 65.82
3. Web: 64.58

NUMBER OF FUNDING ROUNDS



The success of a startup is quite uniform with one funding round, however the likelihood of success increases as funding rounds increase **from 2 to 6**, before it becomes more uniform in distribution again.

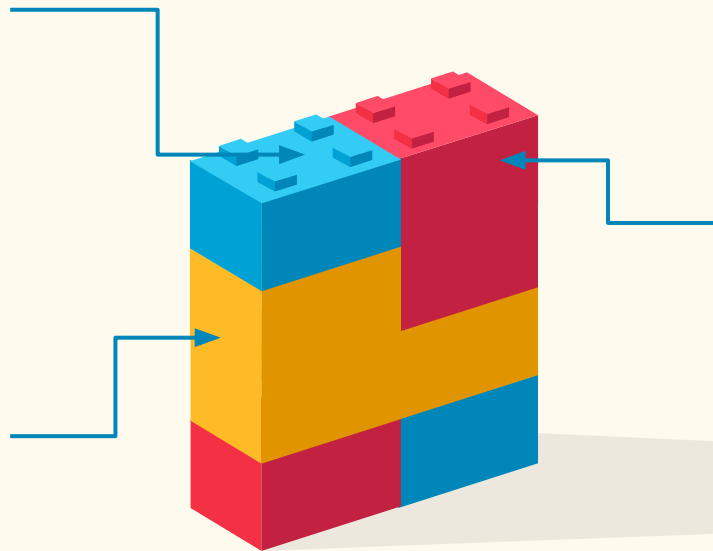
HOW DOES A CLASSIFIER WORK?

DEPLOY MODEL

Uses models such as logistic regression and K-nearest neighbor

TRAIN ON DATASET

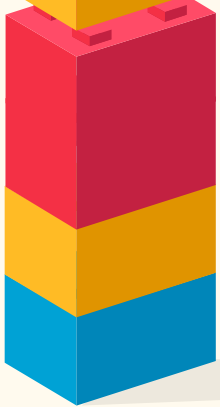
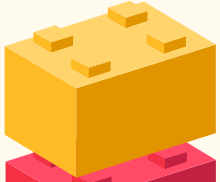
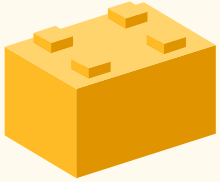
Split the dataset into train/test data



PREDICT STARTUP SUCCESS

If startup has successful features, higher chance of being acquired

HOW DO WE MEASURE?

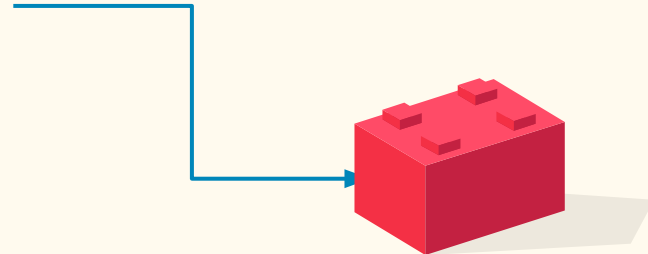


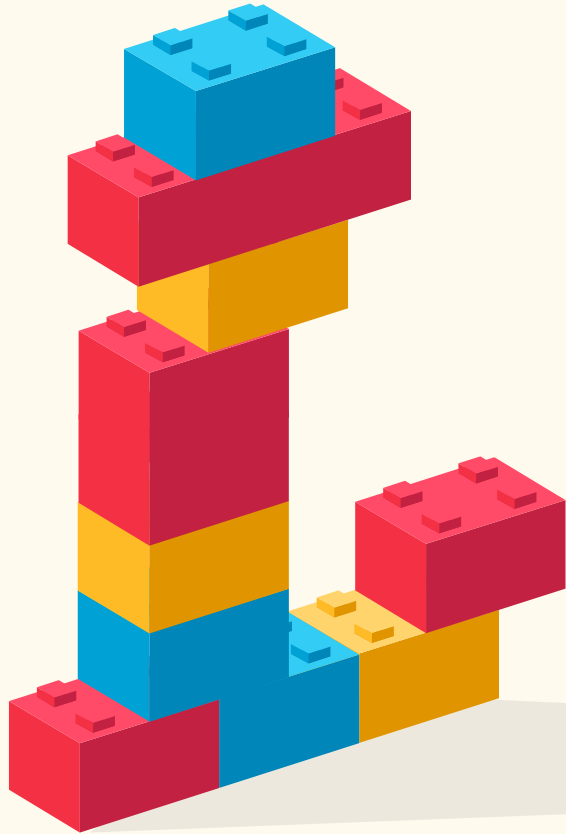
CLASSIFICATION MODELS:

- Logistic Regression
- K-NN
- Adaboost

WHAT TO LOOK FOR:

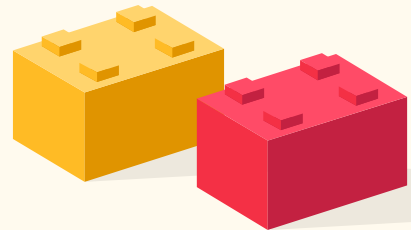
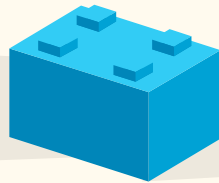
- High F1 score



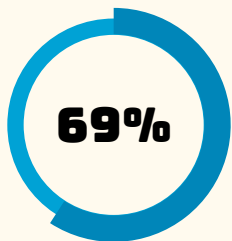


04

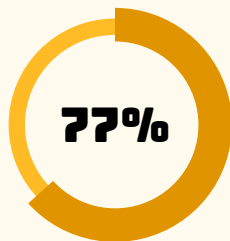
CONCLUSION



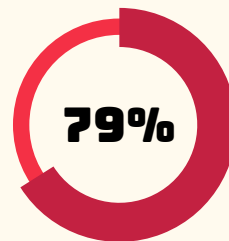
MODEL SUMMARY WITH HYPERPARAMETER TUNING



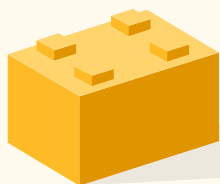
K-NN



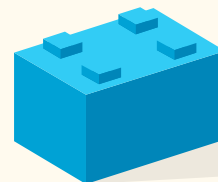
**LOGISTIC
REGRESSION**



ADABOOST



Model	Train Score	Test Score	Specificity	F1 Score
KNN	0.85	0.76	0.49	0.69
Logistic Regression	0.84	0.81	0.63	0.77
Adaboost	0.89	0.83	0.65	0.79



CONCLUSION

WHAT CAN INVESTORS AND ENTREPRENEURS LOOK OUT FOR TO **PREDICT**
A SUCCESS OF A STARTUP?



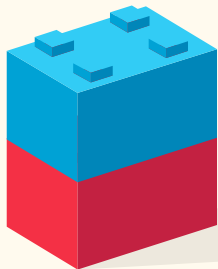
ADABOOST

F1 Score: 79%



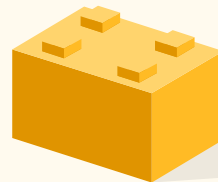
FEATURES

Number of funding
rounds & category code



DATASET

Trained on 1000
company results
65% Acquired
35% Closed

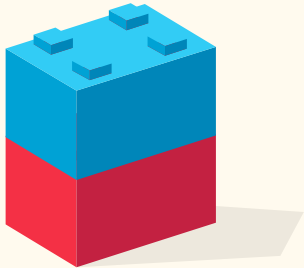


RECOMMENDATIONS

MARKETING AND VISIBILITY



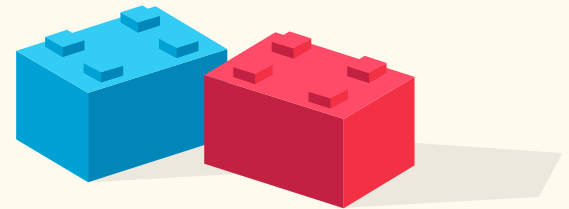
Increase visibility of
brand can increase
revenue
Collaborations with
talents



OFFERS AND BUNDLES DURING LAUNCH



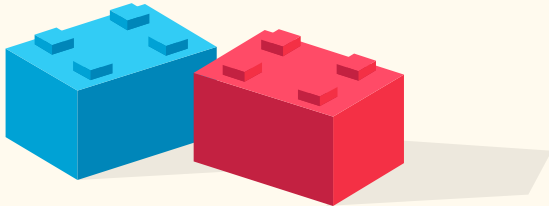
Increase demand and
create customer base



LIMITATIONS AND FUTURE WORK

LIMITED DATASET

Dataset is specific to the US
Singapore startup can be much more varied
Dataset collected from 2000 to 2010



MORE FEATURES

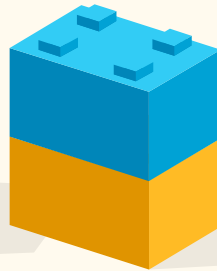
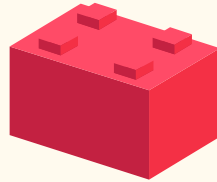
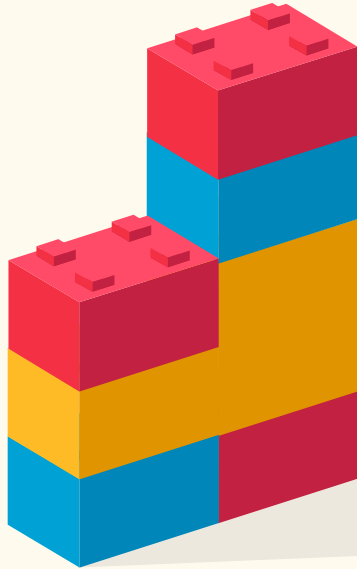
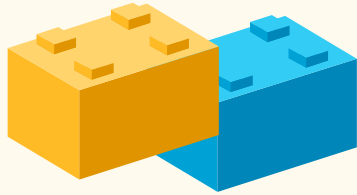
Business to customer models (B2B, B2C)
Company size
Timing and marketing

Date incorporated	21 October 2019
Sector	Aerospace Enterprise Solutions Manufacturing & Engineering AR/VR
Funding Stage	Seed
Employee Range	1 - 10 employees
Looking at	Finding Incubators/Accelerators, Finding Investors, Finding Mentors, Partnerships with Corporates
Business Model	B2B
Market Presence	Vietnam, Indonesia, Hong Kong SAR China, China, Taiwan, Japan, France, South Korea
Tags	AR/VR standard operating procedures SOP MRO Manufacturing aerospace

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THANKS!

Does anyone have any questions?



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