



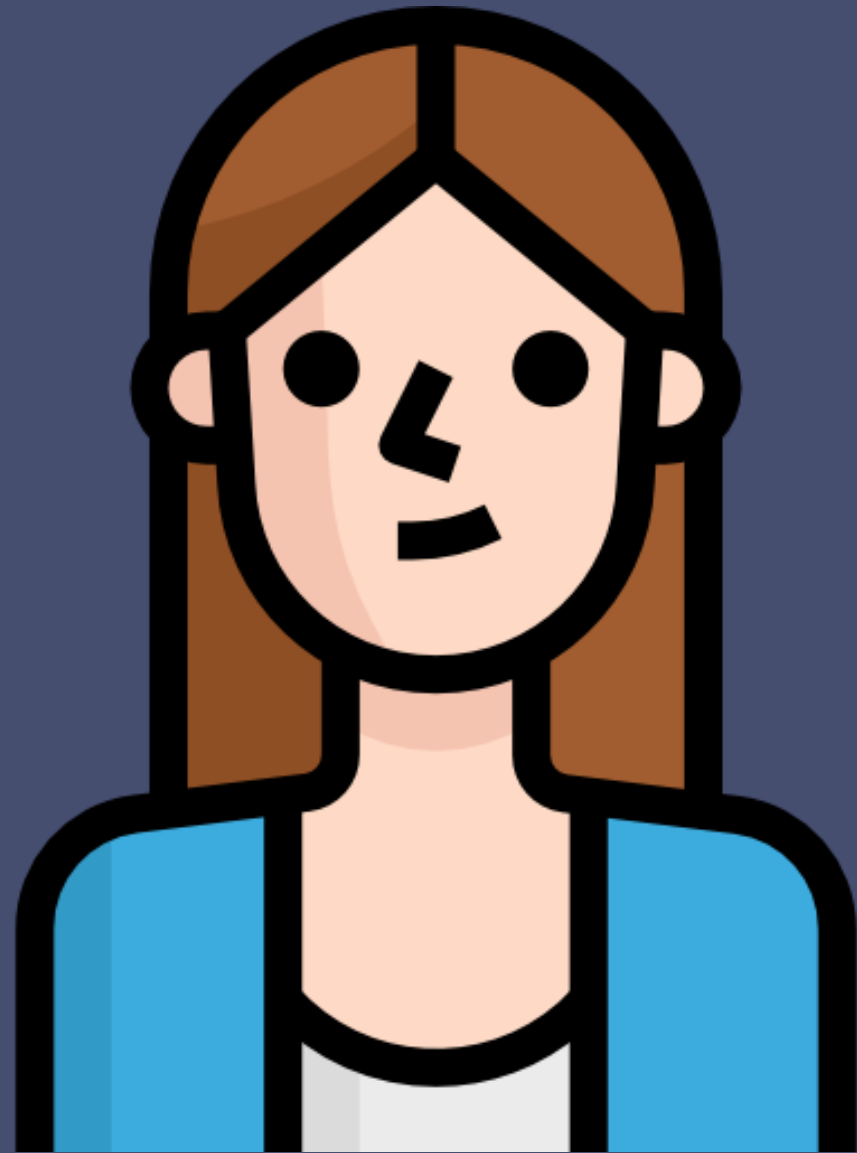
HKU Personal IPO

Intelligent Personal Valuation Platform

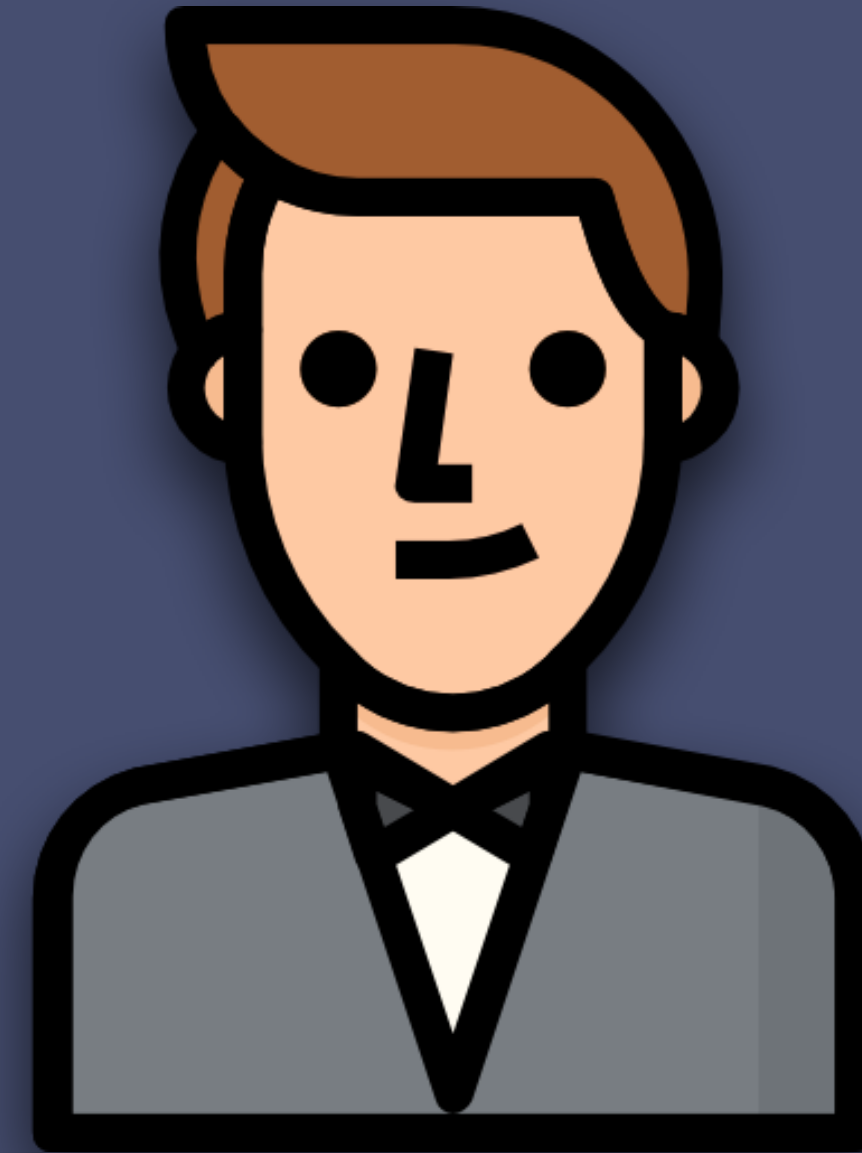


The University of Hong Kong

A Story



Ms. Blue



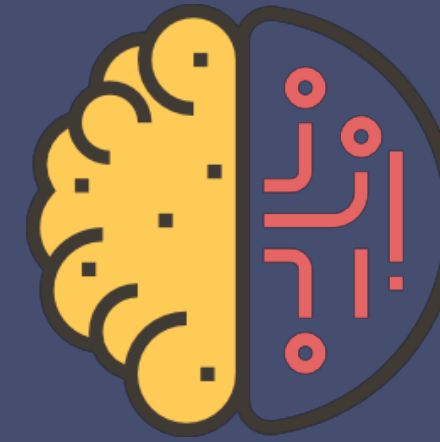
Mr. White



Our Idea



Data Analytics

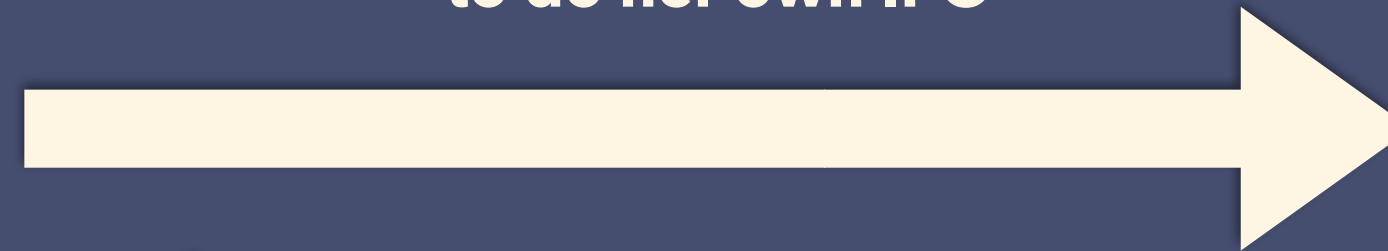


Artificial Intelligence

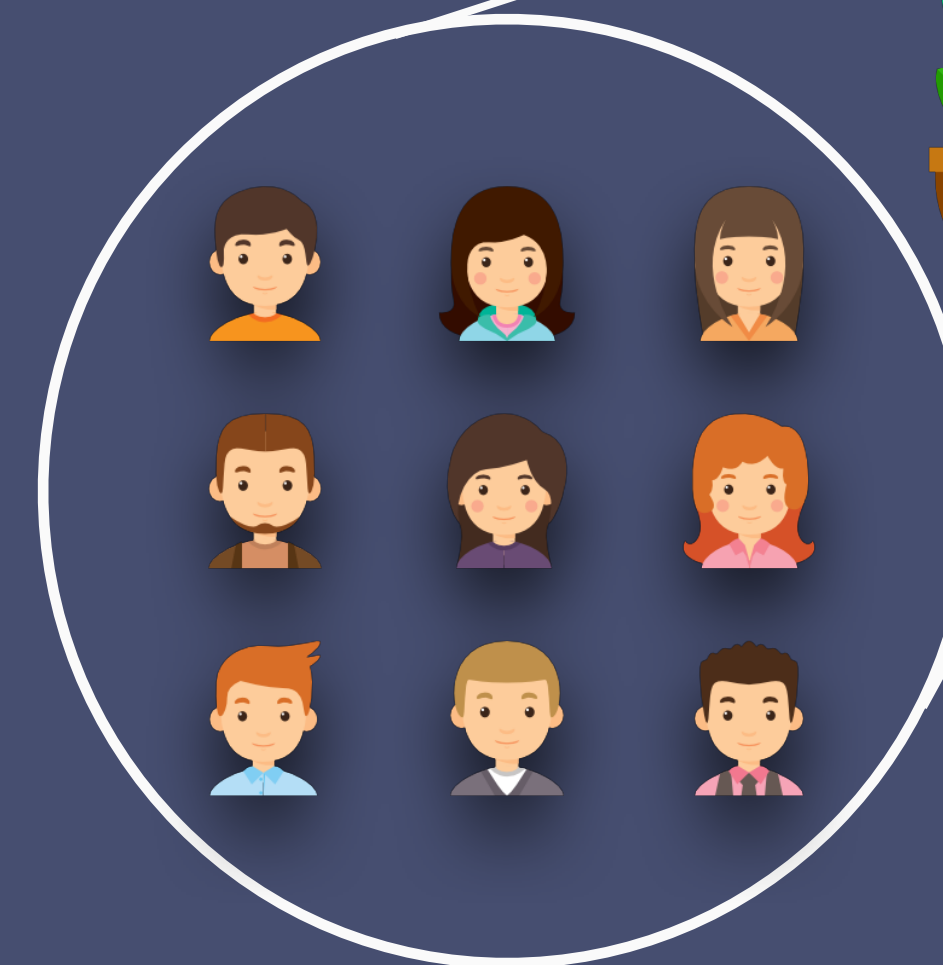
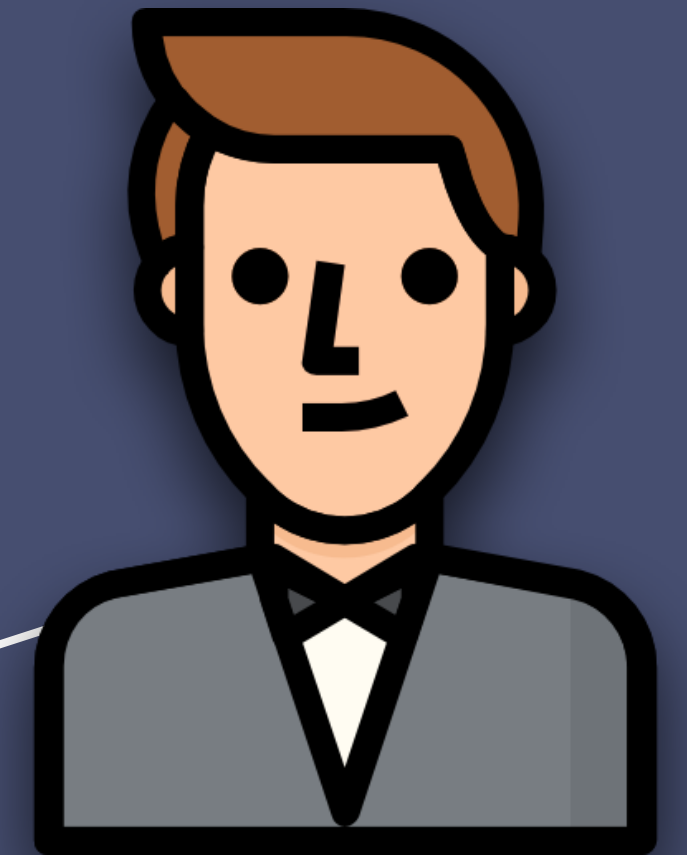


Blue

posts her personal
details on the profile
to do her own IPO



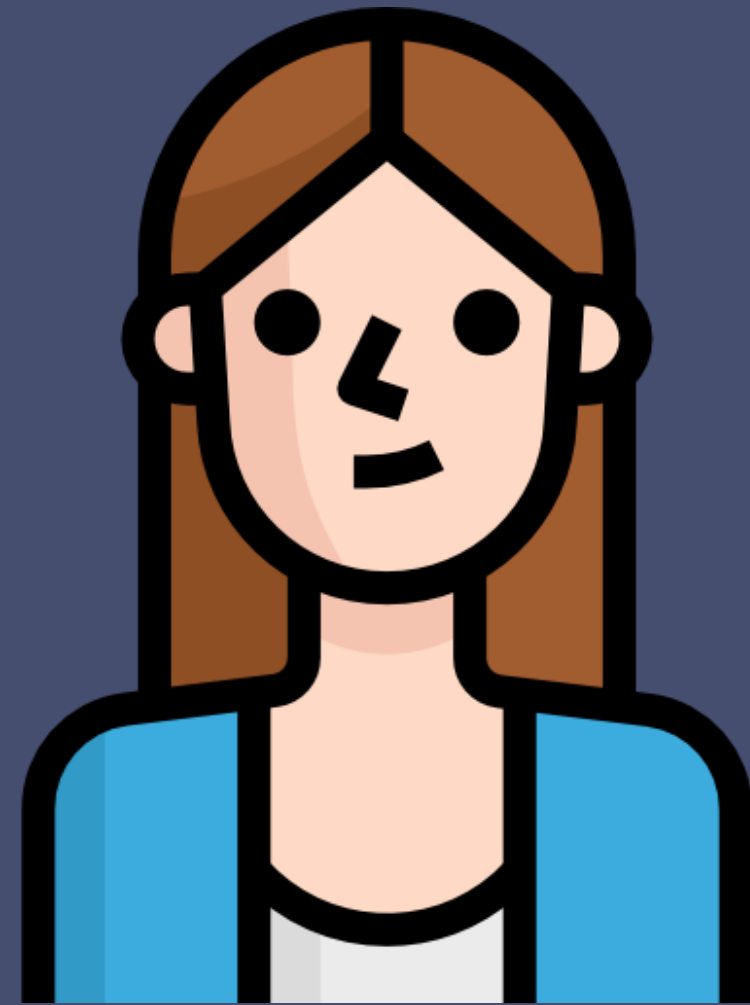
Potential shareholders
bid for her stock and
invest in it



Shareholders of the
Personal IPO



Issuer Side



Ms. Blue

**Signs up
using**



**Gender
Age
Education
Occupation
.....**



HKU Personal IPO



Issuer Side



HKU Personal IPO



The University of Hong Kong

Issuer Side



HKU Personal IPO



Issuer Side



HKU Personal IPO



Gender
Age
Education
Occupation
.....

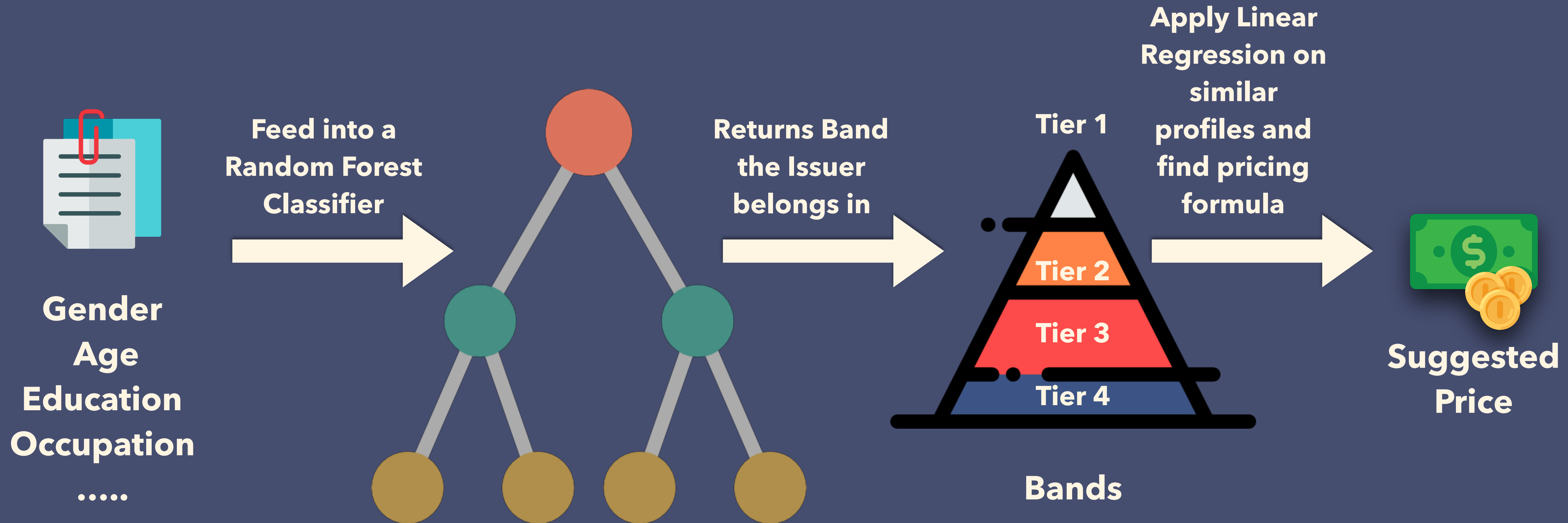


Machine Learning



The University of Hong Kong

Inside Machine Learning



Issuer Side



Risk Analysis



Suggested Price



Ms. Blue

New Price
No. of Shares

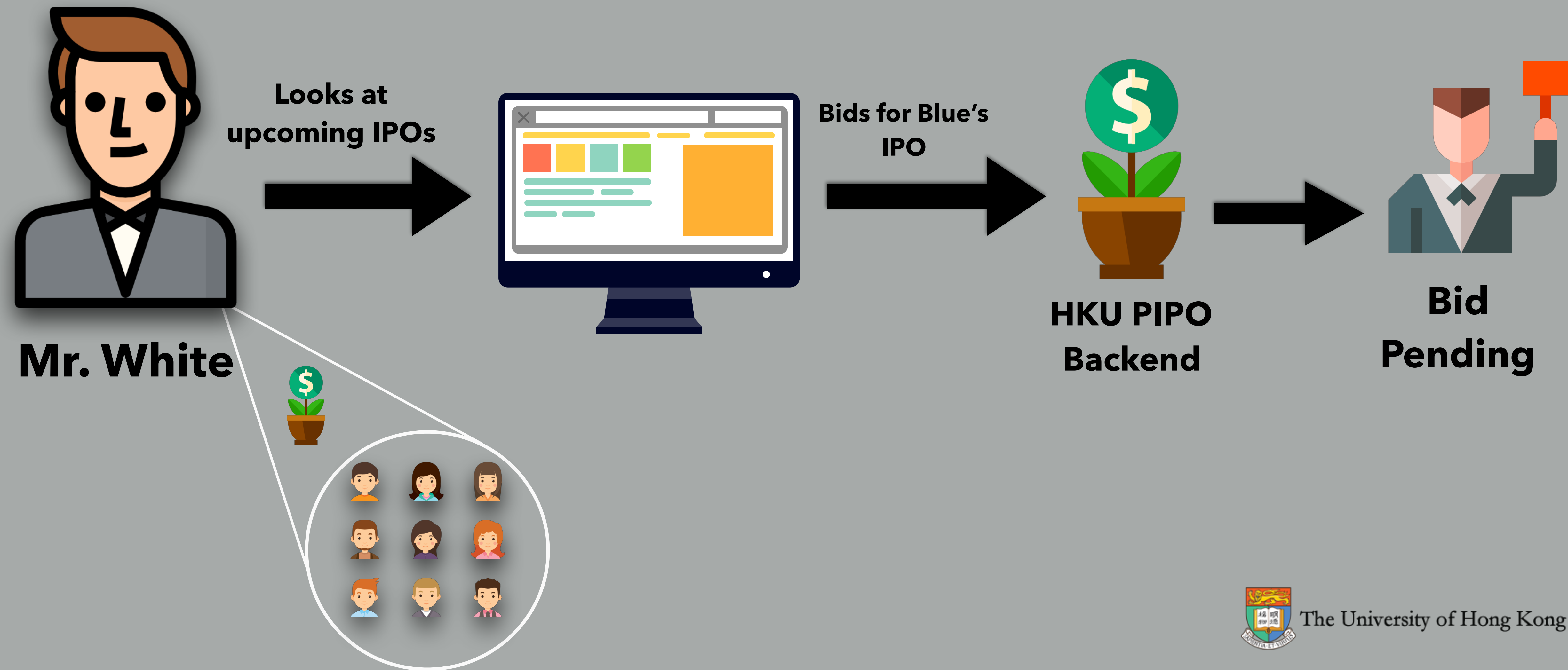


Market



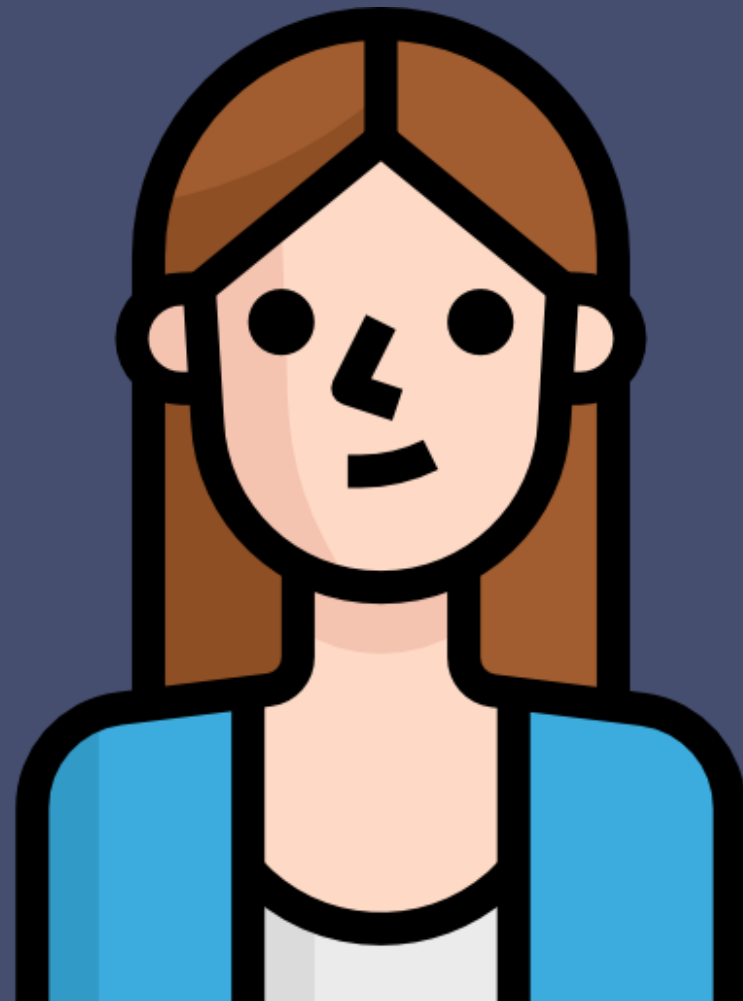
The University of Hong Kong

Investor Side



Issuer Side

Next day



Ms. Blue

Sees recent bids



**Sets ask price and
total transactions**



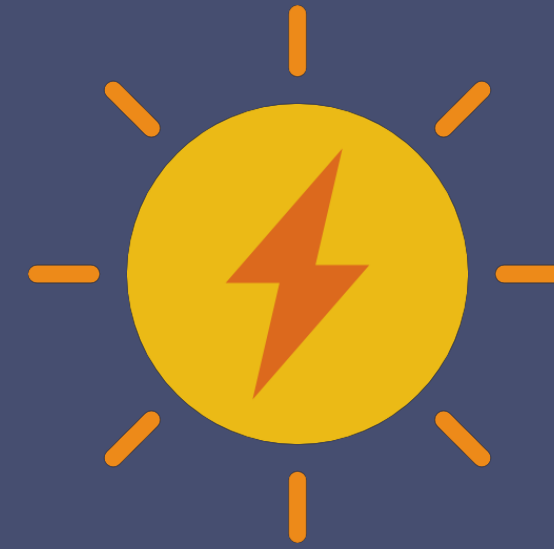
**Her Computer
Screen**



Issuer Side



**Her Computer
Screen**



**ask price and
total transactions feed to
matching engine**



Bids Traded



So how do we do it ?



Transaction Matching

1. FIFO

Bids

Transaction Matching
1. FIFO

Issuer

Bids

\$15

100 Shares

Transaction Matching

1. FIFO

Issuer

Bids

\$15 100 Shares
\$13 50 Shares

Transaction Matching 1. FIFO

Issuer

Bids

\$15 100 Shares
\$13 50 Shares
\$17 100 Shares

Transaction Matching 1. FIFO

Issuer

Bids

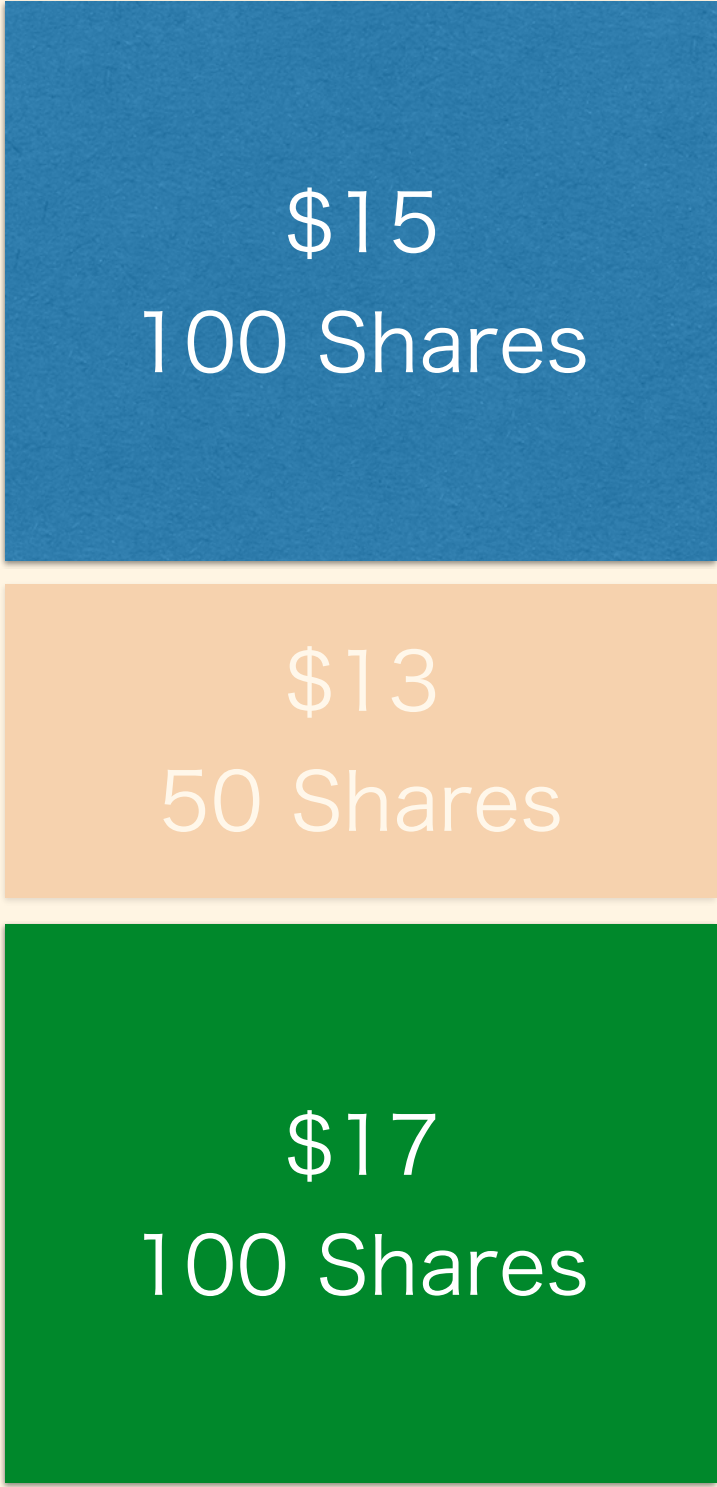


Transaction Matching 1. FIFO

Issuer



Bids



Transaction Matching 1. FIFO

Issuer



Bids

\$15

100 Shares

\$17

100 Shares

Transaction Matching

1. FIFO

Issuer

\$14

150 Shares

Bids



Transaction Matching 1. FIFO

Issuer



Bids

\$15
100 Shares

\$17
100 Shares

Transaction Matching 1. FIFO

Issuer

\$14
150 Shares



Bids



Transaction Matching 1. FIFO

Issuer



Bids



Transaction Matching 1. FIFO

Issuer



Bids

Transaction Matching
1. FIFO

Issuer

Transaction Matching

2. Customised Share Distribution

Transaction Matching
2. Customised Share Distribution

< \$25 < \$50 < \$75 < \$100

Transaction Matching
2. Customised Share Distribution

< \$25 < \$50 < \$75 < \$100

\$20
200 Shares

\$18
15 Shares

\$23
100 Shares

\$30
100 Shares

\$38
200 Shares

\$70
150 Shares

\$90
50 Shares

**Issuer
specifies
total shares
to distribute**

Transaction Matching
2. Customised Share Distribution

< \$25 **< \$50** **< \$75** **< \$100**

\$20
200 Shares

\$18
15 Shares

\$23
100 Shares

\$30
100 Shares

\$38
200 Shares

\$70
150 Shares

\$90
50 Shares

500 Shares

Transaction Matching
2. Customised Share Distribution

< \$25 < \$50 < \$75 < \$100

\$20
200 Shares

\$18
15 Shares

\$23
100 Shares

\$30
100 Shares

\$38
200 Shares

\$70
150 Shares

\$90
50 Shares

500 Shares

Transaction Matching
2. Customised Share Distribution

< \$25 < \$50 < \$75 < \$100

\$20
200 Shares

\$18
15 Shares

\$23
100 Shares

\$30
100 Shares

\$38
200 Shares

\$70
150 Shares

\$90
50 Shares

Issuer
Allocates
Weights to
Groups

500 Shares

Transaction Matching
2. Customised Share Distribution

< \$25 < \$50 < \$75 < \$100

\$20
200 Shares

\$18
15 Shares

\$23
100 Shares

\$30
100 Shares

\$38
200 Shares

\$70
150 Shares

\$90
50 Shares

Distribution

0.125

0.125

0.50

0.25

500 Shares

Transaction Matching
2. Customised Share Distribution

< \$25 < \$50 < \$75 < \$100

\$20
200 Shares

\$18
15 Shares

\$23
100 Shares

\$30
100 Shares

\$38
200 Shares

\$70
150 Shares

\$90
50 Shares

Distribution

0.125 * 500
Shares

0.125 * 500
Shares

0.5 * 500
Shares

0.25 * 500
Shares

500 Shares

Transaction Matching
2. Customised Share Distribution

< \$25 < \$50 < \$75 < \$100

\$20
200 Shares

\$18
15 Shares

\$23
100 Shares

\$30
100 Shares

\$38
200 Shares

\$70
150 Shares

\$90
50 Shares

62
Shares

62
Shares

250
Shares

125
Shares

Distribution

500 Shares

Transaction Matching
2. Customised Share Distribution

< \$25 < \$50 < \$75 < \$100

\$20
200 Shares

\$18
15 Shares

\$23
100 Shares

\$30
100 Shares

\$38
200 Shares

\$70
150 Shares

\$90
50 Shares

Intra-group
Distribution

62/3
Shares

62/2
Shares

250/1
Shares

125/1
Shares

500 Shares

Transaction Matching
2. Customised Share Distribution

< \$25 < \$50 < \$75 < \$100

\$20
200 Shares

\$18
15 Shares

\$23
100 Shares

\$30
100 Shares

\$38
200 Shares

\$70
150 Shares

\$90
50 Shares

Intra-group
Distribution

20
Shares

30
Shares

250
Shares

125
Shares

500 Shares

Transaction Matching
2. Customised Share Distribution

< \$25 < \$50 < \$75 < \$100

\$20
200 Shares

\$18
15 Shares

\$23
100 Shares

\$30
100 Shares

\$38
200 Shares

\$70
150 Shares

\$90
50 Shares

20
Shares

30
Shares

250
Shares

125
Shares

Intra-group
Distribution

500 Shares

Transaction Matching
2. Customised Share Distribution

< \$25 < \$50 < \$75 < \$100

\$20
200 Shares

\$23
100 Shares

\$30
100 Shares

\$38
200 Shares

\$70
150 Shares

\$90
50 Shares

20
Shares

30
Shares

250
Shares

125
Shares

Intra-group
Distribution

500 Shares

Transaction Matching
2. Customised Share Distribution

< \$25 < \$50 < \$75 < \$100

\$20
20 Shares

\$23
20 Shares

\$30
30 Shares

\$38
30 Shares

\$70
150 Shares

\$90
50 Shares

Transaction Matching
2. Customised Share Distribution

< \$25 < \$50 < \$75 < \$100



Demo



The University of Hong Kong

Performance



**Load Distribution:
Utilise all CPUs**



**Extremely Fast Matching
Engine with 10x faster Python
Implementation**



**25,000 Transactions/
Second for a single PC**



**1 Exchange Engine per
IPO**



**Bitcoin: 7tx/s
Paypal: 200tx/s
Visa: 2000tx/s**



The University of Hong Kong

Security & Modifiability



Limit number of order/s per user



Blockchain ? Nah



2 Factor Authentication



**Sandboxed by Docker
for enhanced security**



**Hack Protection from
SQL Injection(Top
Attack in 2017)**



Business Model

Revenue Model

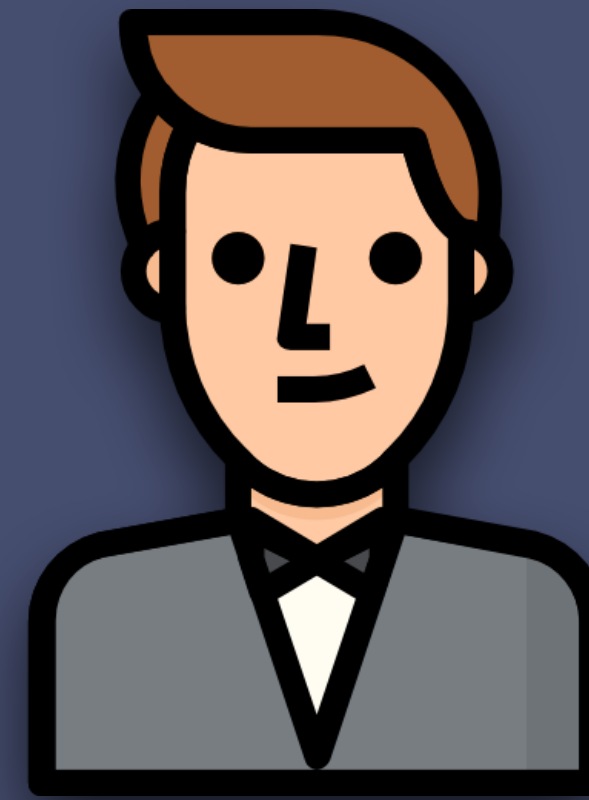


**Service Fee levied
on investors
purchasing shares**



**Cost effective system
with minimal platform
maintenance charges**

Target Customers



**Investors:
People with
money**



**Issuers:
People
interested to IPO**

Feature Summary

UI & Modifiability



Modular Design

News Feed

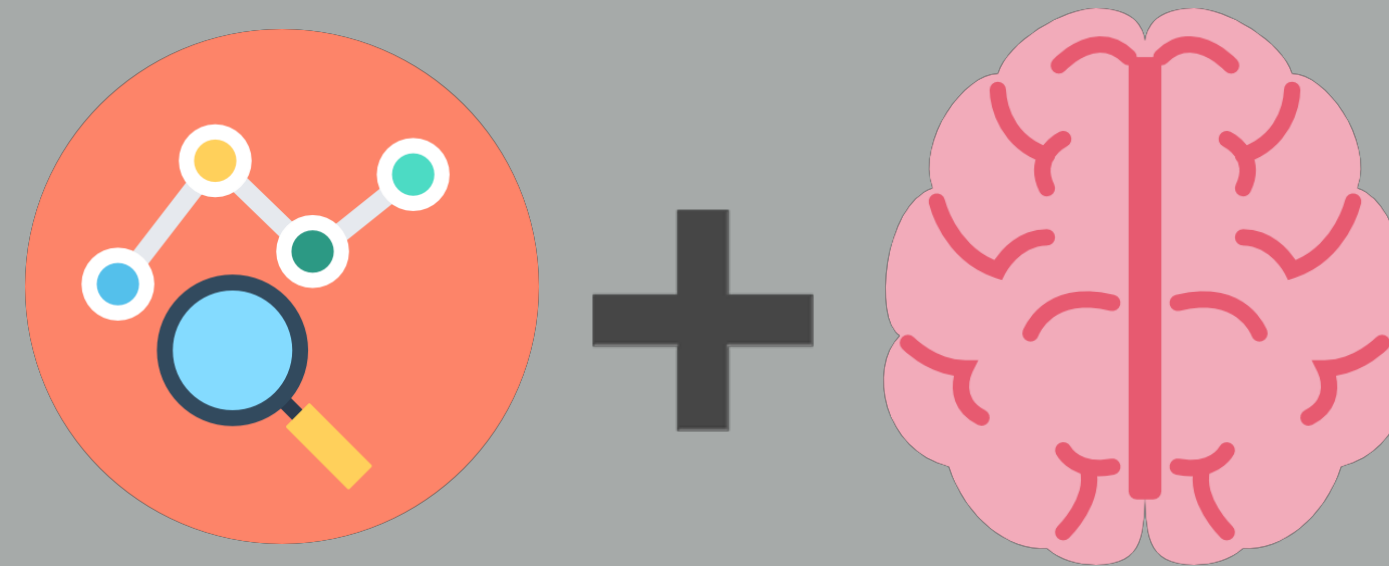
Interactive Graphs

Risk Analysis Assistant

Source Controlled by GitLab

Micro-service design allows easy replacement of components

Analytics



Portfolio Factors Weighting and Suggestions

Scoring System

Optimising Issuer Price

AI for Reference Pricing

**10x Faster Python Implementation
Ready for Reinforcement Learning in the future**

System Architecture



Hack Protection

2 Factor Authentication

Ready for Real Time Trading

Unlimited Scalability

25000 transactions/second

Risk Analysis Assistant



The University of Hong Kong