

# knock, knock IT industry

Samantha Wong @ EduR - Advisory.SG  
31 August 2019





# whoami

Associate Quality Engineer with GovTech

5 years in the industry (full-time)

8 years of experience working in IT (via internships)

Graduated from NUS School of Computing in 2014

Currently pursuing a Masters Degree in Computing at NUS



# Educational Journey

Went to St Anthony's Canossian Girls Primary

Transferred to Raffles Girls' Primary in P3

Went to Raffles Girls Secondary

Transferred to NUS High School in Secondary 3

Graduated from NUS High in 2008

Went to MIT for two years

Graduated from NUS, School of Computing in 2014



# What was I studying all that time

In primary school: the usual stuff

First two years of secondary school: Literature, History, Geography, Mathematics, Physics, Chemistry, Biology

In secondary school: ~~Literature, History, Geography,~~ Physics, Chemistry, Biology, Mathematics

In JC: Physics, Chemistry, Biology, Mathematics



# **I had no idea what I was going to ~~become~~ study**

When I was 9, I thought I was going to be an archaeologist

When I was 14, a lawyer

When I was 16, a scientist

When I was 18, a mathematician



**Much less what I would  
work as for my first  
Full-Time job**

# About Now

Jobs, Roles and Responsibilities





# What do I do (Quality Engineer)

Ensure quality of a software product via testing

- Writing code to test behaviour of websites/mobile apps
- Testing API endpoints
- Load testing (finding the maximum load a server can handle)
- Writing software to develop testing tools
- Designing test cases around expected and unexpected user behaviour



**Some Work In Progress**

https://sharing.tpss.edu/inspire-students

GET

https://sharing.tpss.edu/inspire-students

Send

Save

Params

Authorization

Headers (1)

Body

Pre-request Script

Tests

Cookies Code Comments (0)

☐ none ☐ form-data ☐ x-www-form-urlencoded ☒ raw ☐ binary JSON (application/json)

Beautify

```
1 {  
2   "topic": "quality-engineering",  
3   "status": "SUCCESS",  
4   "date": "2019-05-23T15:30:00.000"  
5 }
```

Response

today\_03\_12\_2018.rtf

today\_05\_dec\_2018.rtf

types.txt

usability\_testing.rtf

write\_a\_text\_19\_dec\_2018.rtf

[hats-MacBook-Pro-3:molb hats\$ cd molb-e2e-test/]

[hats-MacBook-Pro-3:molb-e2e-test hats\$ git status]

On branch master

Your branch is ahead of 'origin/master' by 21 commits.

(use "git push" to publish your local commits)

Changes not staged for commit:

(use "git add &lt;file&gt;..." to update what will be committed)

(use "git checkout -- &lt;file&gt;..." to discard changes in working directory)

modified: cypress/config/dev.json

modified: cypress/config/staging.json

modified: cypress/fixtures/upload/halalIngredient\_1.xls

modified: cypress/integration/staging/ThroughPath.spec.js

modified: cypress/support/utils/useful.js

There was an error connecting to <https://api.g2b.sg/api/agency-responses>.

Untracked files:

(use "git add &lt;file&gt;..." to include in what will be committed)

**Why this might have happened:**

- The server couldn't send a response. Ensure that the backend is working properly
- Self-signed SSL certificates are being blocked: Fix this by turning off 'SSL certificate verification' in *Settings > General*

no changes added to commit (use "git add" and/or "git commit -a")

no changes added to commit (use "git add" and/or "git commit -a")

molb-e2e-test

Tests 4 7.43

ThroughPath.spec.js

landing page

landing page

add premise

input premise text

select food shop type

choose your concept and activities

TEST

|    |      |   |
|----|------|---|
| 1  | GET  | div[class*=questionnaire__questionGroup] div[class*=questionnaire__questionL... |
| 2  | LOG  | number of available activities: 6   |
| 3  | LOG  | number of available sub-activities: 2   |
| 4  | WRAP | Array[6]  |
| 5  | LOG  | 0 was found to be of this found_disabled quality:                               |
| 6  | LOG  | <input.checkbox__checkboxInput--Zqi9J>  |
| 7  | LOG  | 1 was found to be of this found_disabled quality:                               |
| 8  | LOG  | <input.checkbox__checkboxInput--Zqi9J>  |
| 9  | LOG  | 2 was found to be of this found_disabled quality:                               |
| 10 | LOG  | <input.checkbox__checkboxInput--Zqi9J>  |
| 11 | LOG  | 3 was found to be of this found_disabled quality:                               |
| 12 | LOG  | <input.checkbox__checkboxInput--Zqi9J>  |
| 13 | LOG  | 4 was found to be of this found_disabled quality:                               |
| 14 | LOG  | <input.checkbox__checkboxInput--Zqi9J>  |
| 15 | LOG  | 5 was found to be of this found_disabled quality:                               |
| 16 | LOG  | <input.checkbox__checkboxInput--Zqi9J>  |

https://g2b.sg/add-premise/onboarding

1440 x 900 (35%)

Singapore Government Agency Website

General Info

Concept and Activities

Premises Address

STEP 1

Describe your concept and activities

Please select all that are applicable to you.

Choose your activities (Optional)

If you are not sure, you can skip this for now.

☐ Music/live entertainment/game machines  
Public Entertainment Licence

☐ Sale of halal food  
Halal Certification

☐ New fire safety works or addition and alteration,  
fire safety works or change of use @  
Fire Safety Certificate

☐ Storage > 200kg liquefied petroleum gas (LPG)  
Petroleum & Flammable Material Storage Licence

☐ Self import of ingredients and equipment  
Licence to Import/Export/Transport

☐ Sale or consumption of alcohol  
Liquor Licence

ThroughPath.spec.js

commands.js x formApplicationDetails.spec.js x ThroughPath.spec.js x usefulFormFilling.spec.js x login.spec.js x useful.js x data.js x application.js x dev.json x

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```
describe('ThroughPath.spec.js', callback() => {
  context('description: 'landing page', callback() => {
    step('title: 'landing page'', fn() => {
      cy.visit(url);
    });
  });
  step('title: 'add premise'', fn() => {
    let add_premise_text = 'Add New Premises';
    cy.get(selector: 'div[class=promiseHeader__addNewPremise]')
      .find(selector: 'button')
      .contains(add_premise_text)
      .click();
  });
  step('title: 'input premise text'', fn() => {
    let premise_name = createPremiseName();
    cy.get(selector: 'section[id=inputPremiseName]')
      .find(selector: 'input[class=input]')
      .type(premise_name);
  });
  step('title: 'select food shop type'', fn() => {
    let flow = chance.integer({min:0, max:1});
    flow = 0;
    let choose_foodshop_section = 'section[id=selectFoodShopType]';
    if (flow) {
      cy.log('I\'m Not Sure Flow');
    } else {
      cy.log('I\'m Sure Flow');
      let fst = chance.integer({min: 0, max: 24});
      fst = 18;
      cy.log('Food Shop Type: ' + fst.toString());
      cy.get(choose_foodshop_section)
        .find(selector: 'div[class=tileGroup__tileGroup] div[class=selectFoodShopType__foodShopTypeContainer]:eq(' + fst.toString() + ')')
        .click();
      cy.get(selector: 'section[class=actionSection__section]')
        .find(selector: 'button[type=submit]')
        .contains('Next')
        .click();
    }
  });
  step('title: 'choose your concept and activities'', fn() => {
    let big_questionnaire_section = 'div[class=questionnaire__questionGroup] div[class=questionnaire__questionList]';
    let questionnaire_section = big_questionnaire_section + ' div[class=questionnaire__checkboxQuestionWrapper]';
    let subquestionnaire_section = big_questionnaire_section + ' div[class=checkboxGroupQuestion__checkboxGroup]';

    //wait for page to load
    cy.get(big_questionnaire_section, options: {timeout: 10000});

    let num_of_available_activities = Cypress.$(questionnaire_section).length;
  });
});
```

callback for describe()

callback for context()

callback for step()

questionnaire\_section

st/cypress/config

nolb-e2e-test/cypress/fixtures/upload

a-test/cypress/config

with a test runner configuration file

Event Log

figuration for the following file(s): // Dockerfile // Disable this notification (2 minutes ago)

68:38 LF UTF-8 Tab Git: master



## Test automation Software



Selenium  
Apache Lice...



TestComplete  
Proprietary s...



Appium



Ranorex  
Proprietary s...



Cucumber  
MIT License



HP QuickTest  
Professional  
Proprietary s...



Watir  
BSD licenses



Tricentis  
Tosca  
Proprietary s...



Test Studio  
Proprietary s...



Rational  
Functional T...  
Proprietary s...



Tricentis  
Tosca Tests...  
Proprietary s...



Katalon  
Studio  
Proprietary s...



R  
M

## Automated Testing Tool | Run &amp; Monitor End-To-End Tests

[Ad](#) [get.askidact.com/](#)

Run manual tests and gradually automate each step no matter which technology you're using. The...  
[About Us](#) · [Pricing Information](#) · [View Benefits](#) · [Get A Free Trial](#) · [View Features](#)

## Automated Testing Tool | Desktop, Web &amp; Mobile | ranorex.com

[Ad](#) [www.ranorex.com/](#)

Increase efficiency & software quality with the Ranorex automated testing tool! Make Ranorex & test automation your ally in assessing the quality of your application. Professional Support. For Beginners & Experts. Detailed Reporting. Easy-to-Use & Affordable. Free 30-Day Trial.  
[Try Ranorex for Free](#) · [Test Automation Strategy](#) · [Live & On-Demand Webinars](#) · [Ranorex Selocity](#)

## Best Automation Testing Tools for 2019 (Top 10 reviews) - Medium

<https://medium.com/.../best-automation-testing-tools-for-2018-top-10-reviews-8a4a19...>

Oct 26, 2017 - Top 10 automation testing tools that help teams keep pace with testing trends. This testing tool list includes open-source, free, and commercial ...

People also ask

Which tools are used for automation testing?



## Example code

A fundamental feature of Locust is that you describe all your test in Python code. No need for clunky UIs or bloated XML, just plain code.

### Select example ▶

- Simple
- [With HTML parsing](#)
- [Nested TaskSets](#)

```
locustfile.py

from locust import HttpLocust, TaskSet, task

class WebsiteTasks(TaskSet):
    def on_start(self):
        self.client.post("/login", {
            "username": "test_user",
            "password": ""
        })

    @task
    def index(self):
        self.client.get("/")

    @task
    def about(self):
        self.client.get("/about/")

class WebsiteUser(HttpLocust):
    task_set = WebsiteTasks
    min_wait = 5000
    max_wait = 15000

$ locust -f locustfile.py
```

Taken from Locust.IO Website









# Examples of Some Tools We Use

Functional Testing: Appium, Selenium, Cypress

Compatibility Testing: AppliTools

Security Testing: SonarQube

Load Testing: Locust, JMeter



# What do Software Engineers/Developers do

Understand requirements

Develop software to meet the requirements

Work with programming languages such as: Python, C, C++, C#, JavaScript, Ruby, OCaml, Java, TypeScript, Perl, PHP, HTML, CSS



# What do Data Engineers/Data Scientists do

Data Engineers clean data

Data Scientists analyse the data

Languages Used: Python

Libraries Used: numpy, scikit-learn



# INside



# What is GovTech's Role in the Industry

An in-house technology agency for other government bodies

Promotes and upkeepes the latest technological standards throughout the government



# What is Quality Engineering

Poorly defined

Focus on Quality



# Challenges People In the Industry Face

Technology changes very rapidly

Tools, even languages you use today, may not be in use tomorrow

Some people find it boring/tedious -> many technical people move out of technical roles after a few years

Need to keep yourself physically active



# Key Qualities to Excel

Not be afraid to fail

Move fast, be willing to keep learning

Hopefully you like what it is you have to do





# Important Values

Honesty

Work Ethic

Excellence



# Why Join This Industry

It's growing

It's fulfilling if you are passionate about quality or software

It will give you a basis for other opportunities

Teaches you to think in a methodical manner



# What are my long-term goals

Make government software better

Develop testing tools that will help people

Make testing less painful for those who do testing



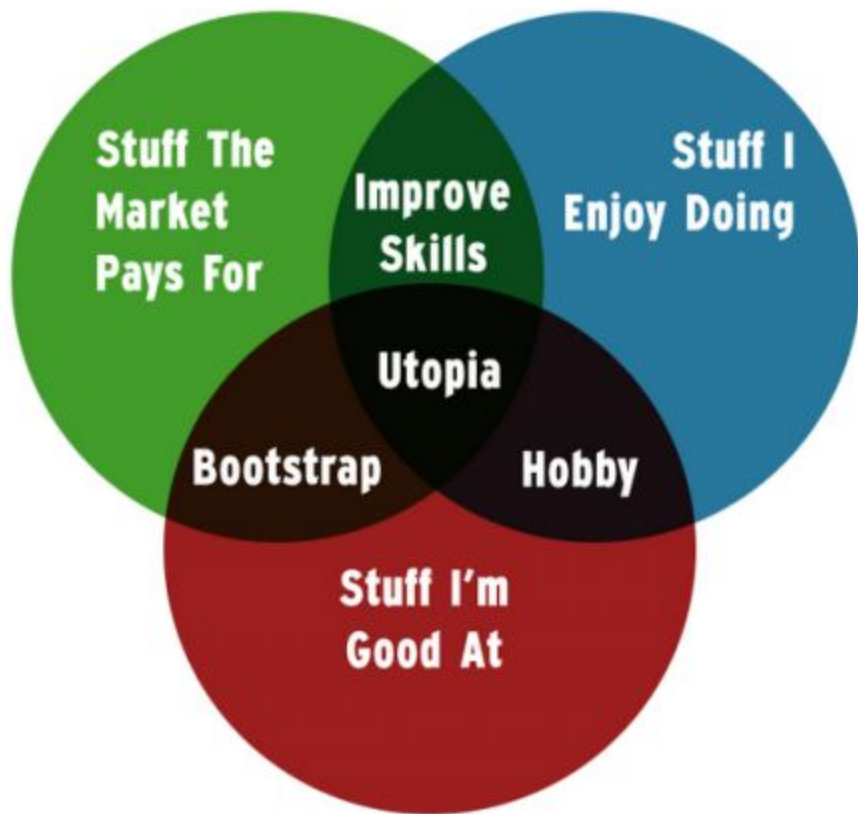
# **Why is the IT/Software Industry Important**

It is the future

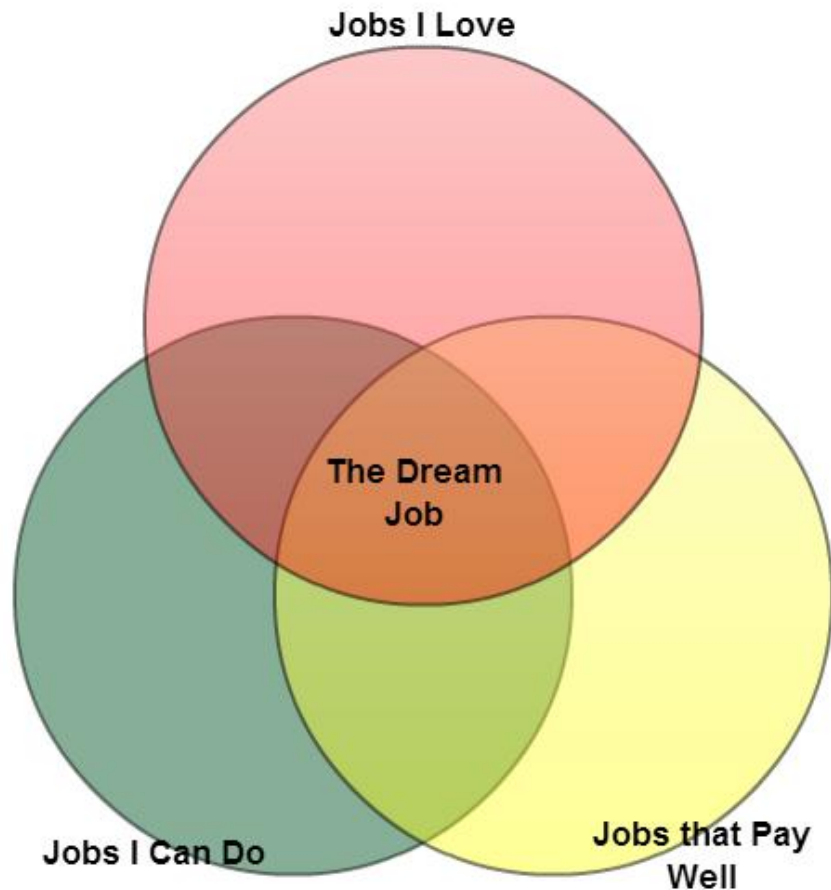
# **Why is Quality Engineering Important**

It takes the future seriously

**You may not know exactly  
where you want to be/end up,  
but you can start off by doing  
something you like/is useful**



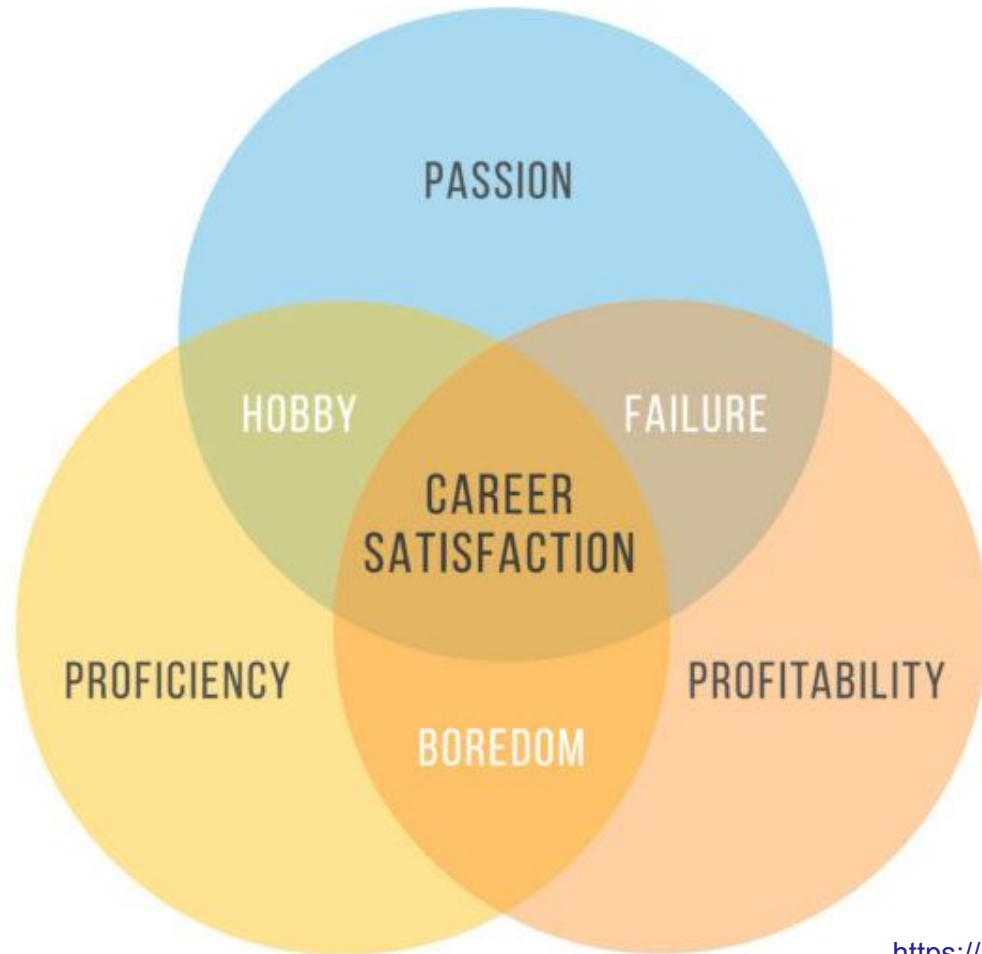
<https://honestyexperiment.wordpress.com/2013/09/03/how-to-find-your-dream-job/>

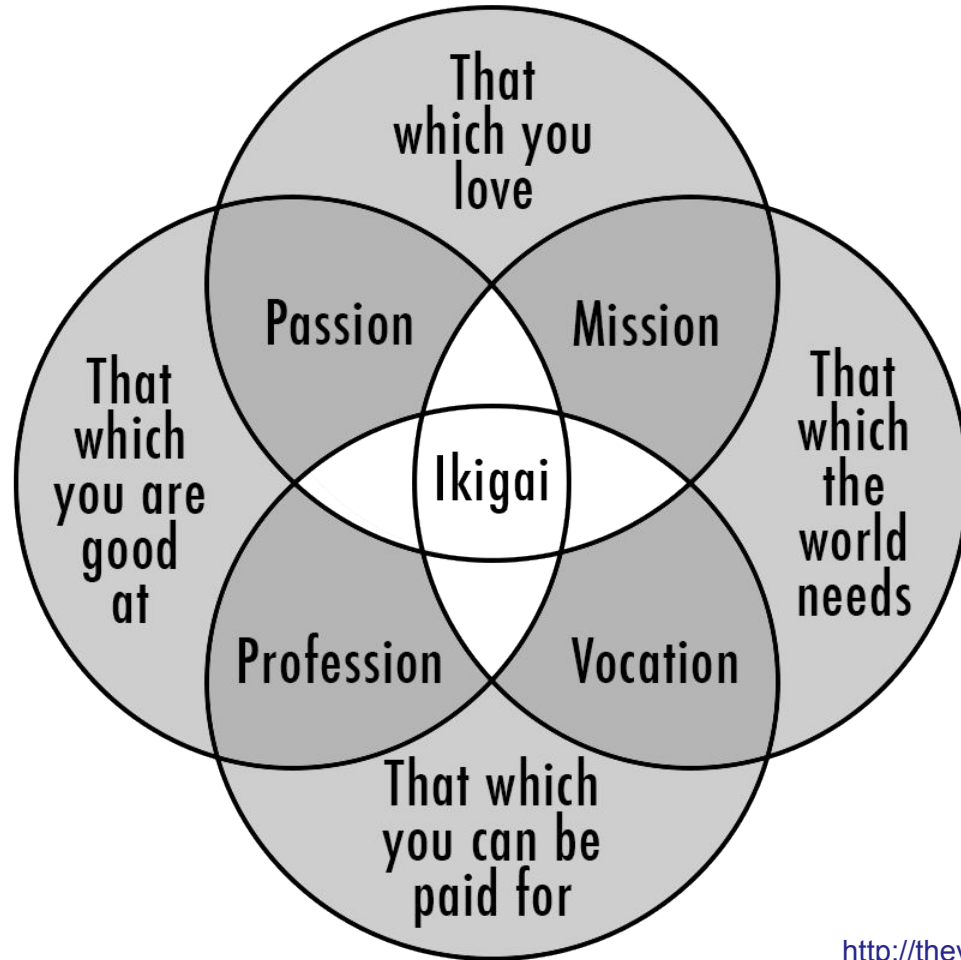


<https://creately.com/blog/diagrams/use-venn-diagrams-solve-problems/>











# Questions

