

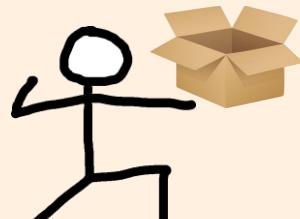


JustGivit

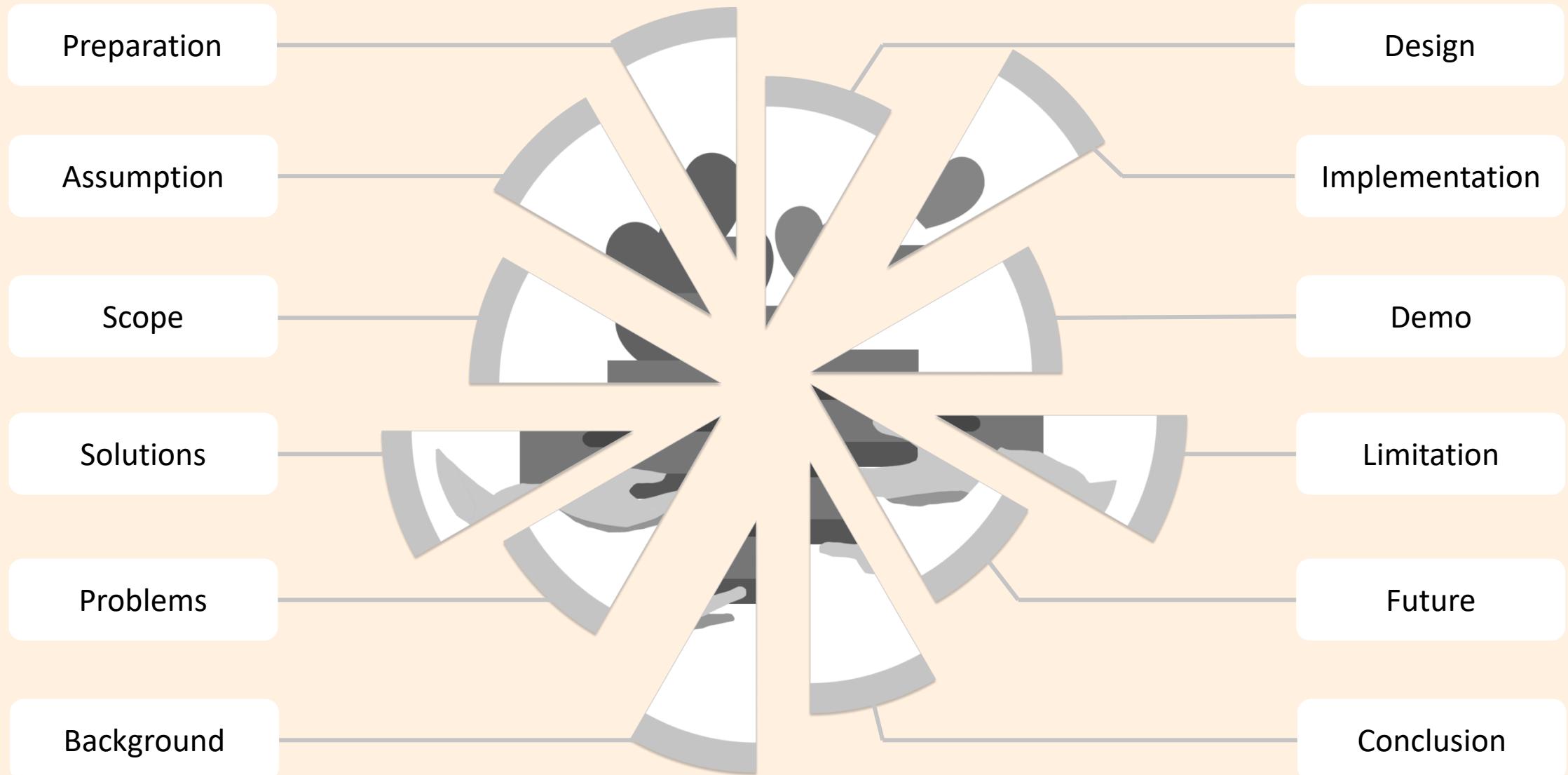
A digital platform for Giving

CZ4079 Final Year Project

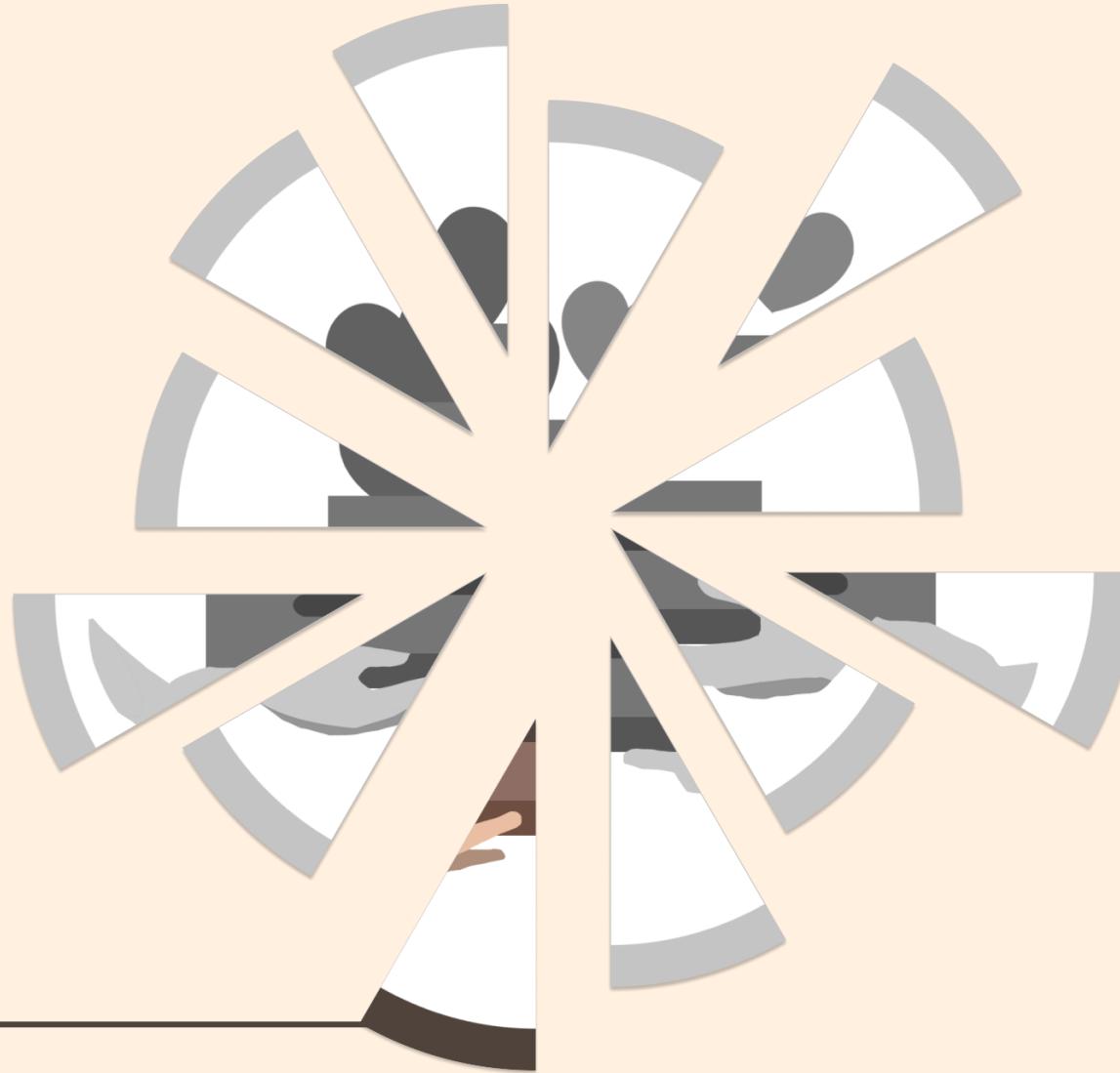
Presenter: Sam Jian Shen



Content

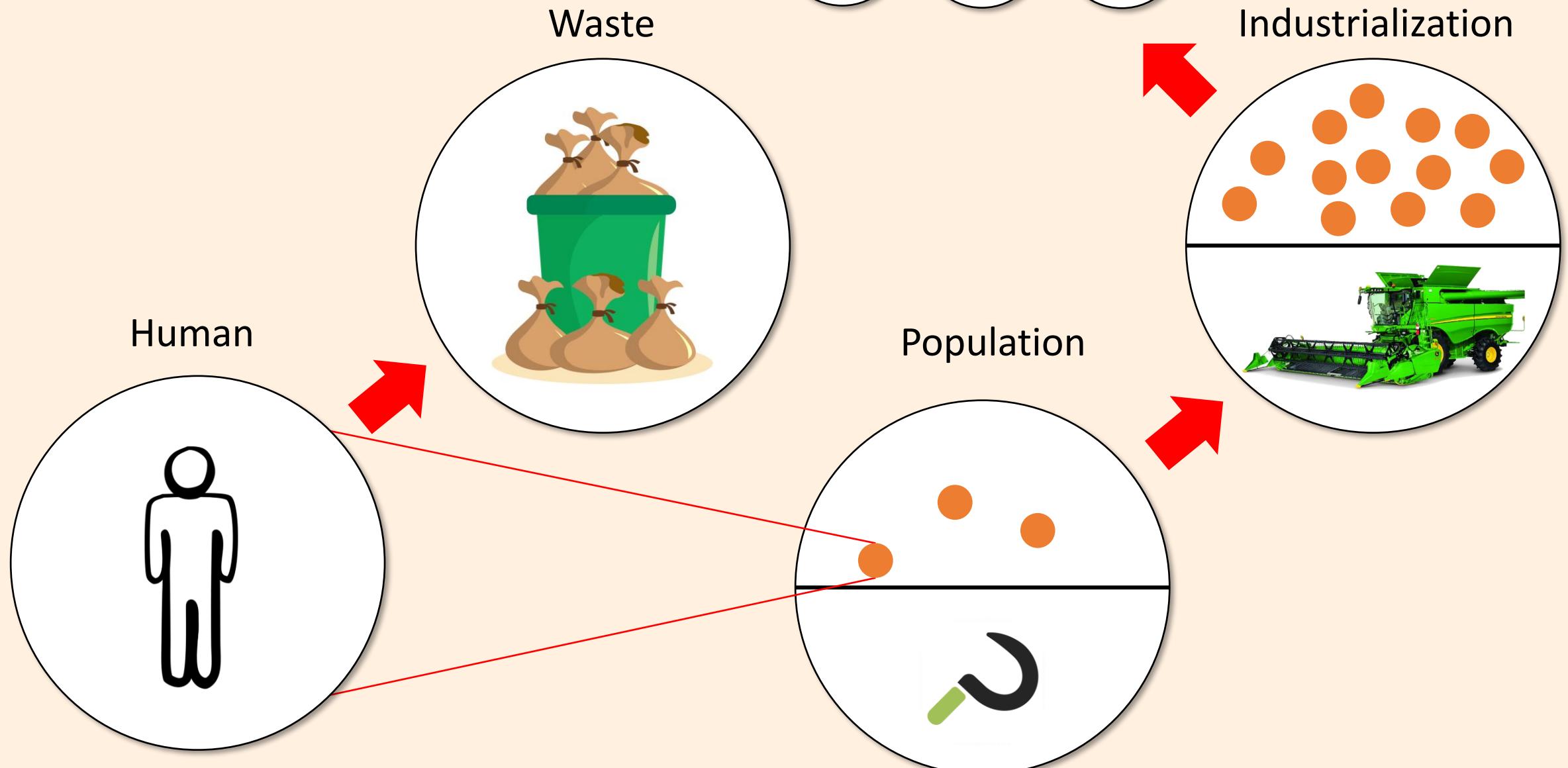


Content

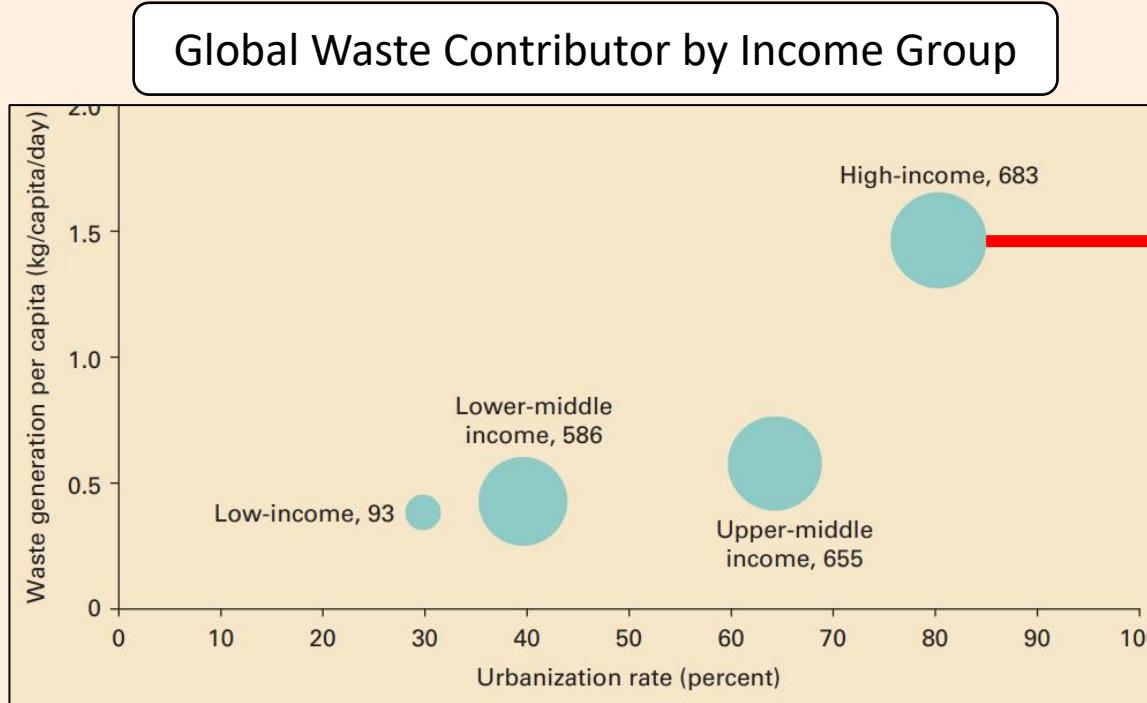


Background

About Waste

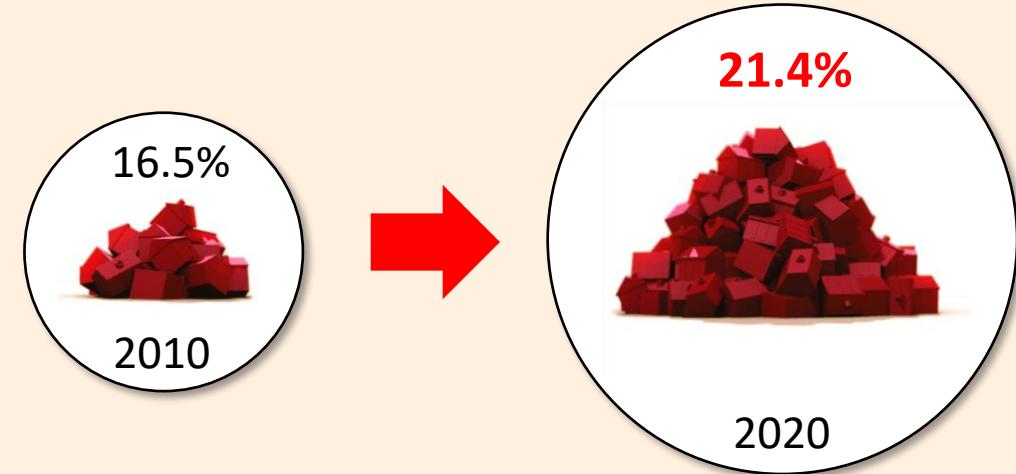


Contributor

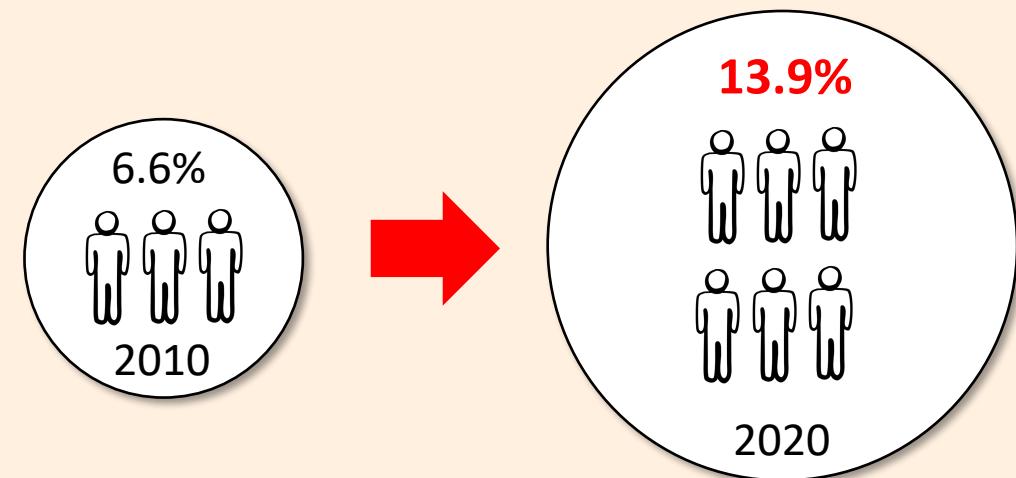


- Singapore's Solid Waste Contribution Facts (per kg/capital/day):**
- **1st** in the region (East Asia & Pacific)
 - **5th** in the world
 - Estimate **5 times** more than global average

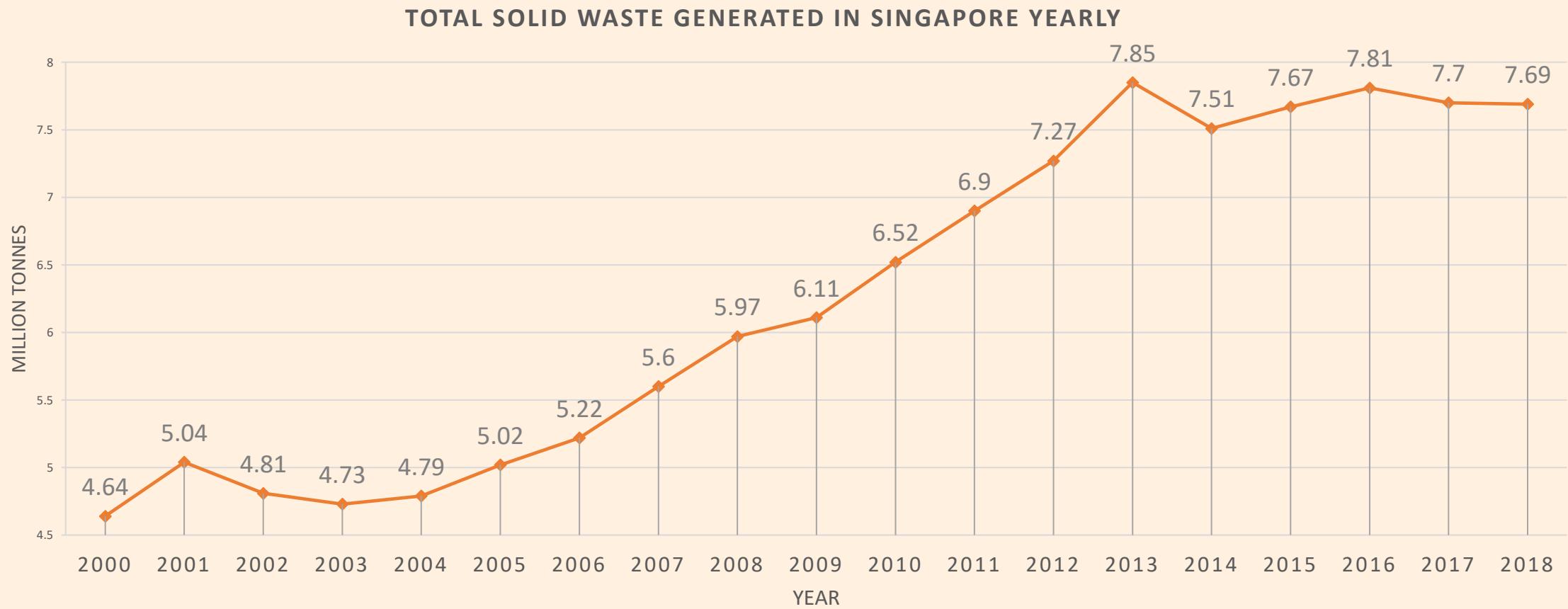
Owned Condominium & Landed Property



Household Monthly Income > SGD\$20k



Local Waste

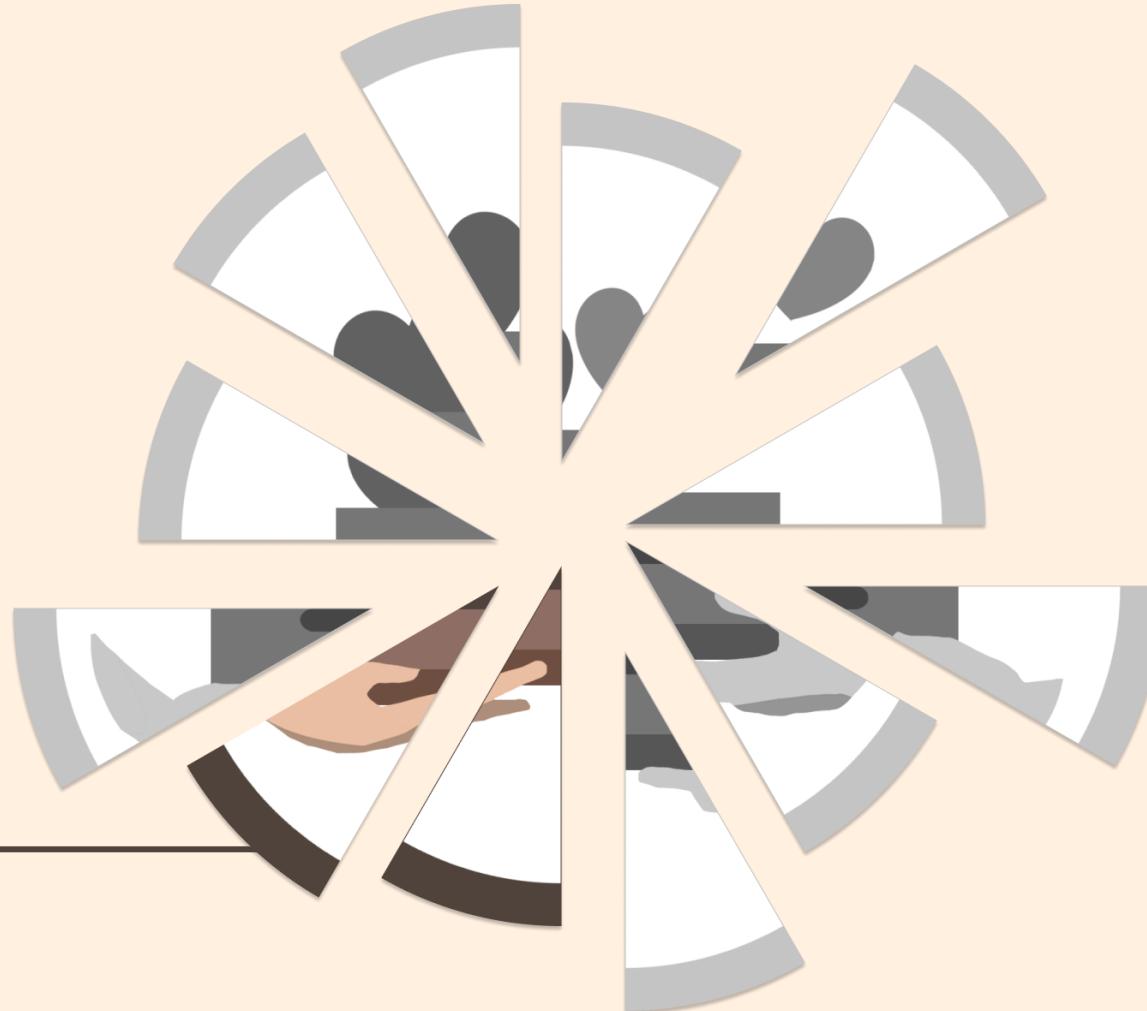


2000-2016 <https://data.gov.sg/dataset/solid-waste-management-total-waste-generated>

2016-2018 <https://www.nea.gov.sg/docs/default-source/default-document-library/waste-recycling-stats-2016-to-2018.pdf>

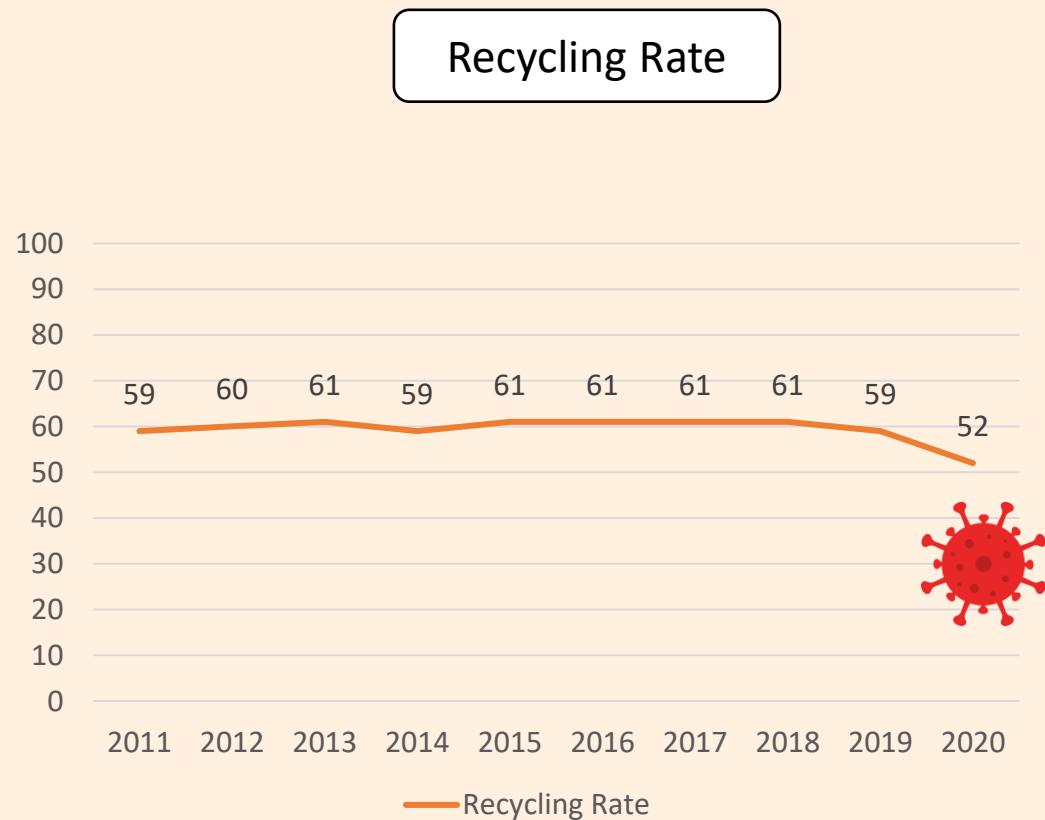
28.8%

Content

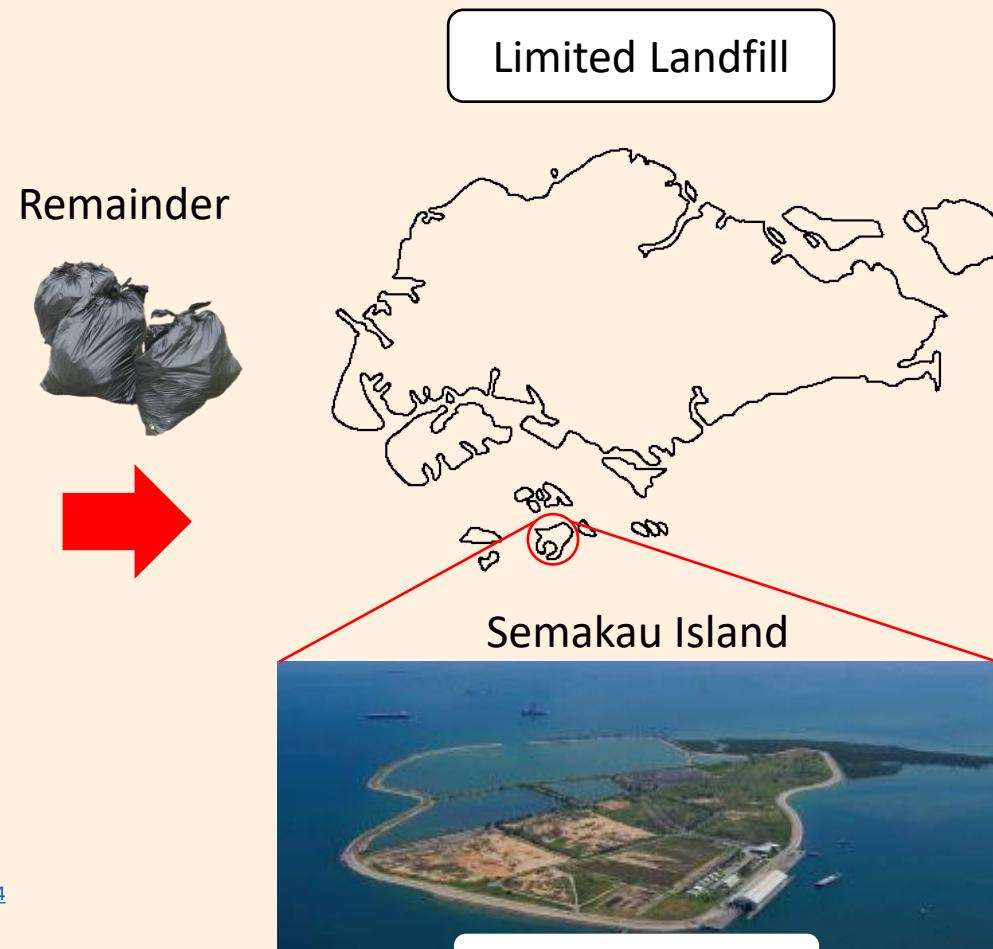


Problems

Problems



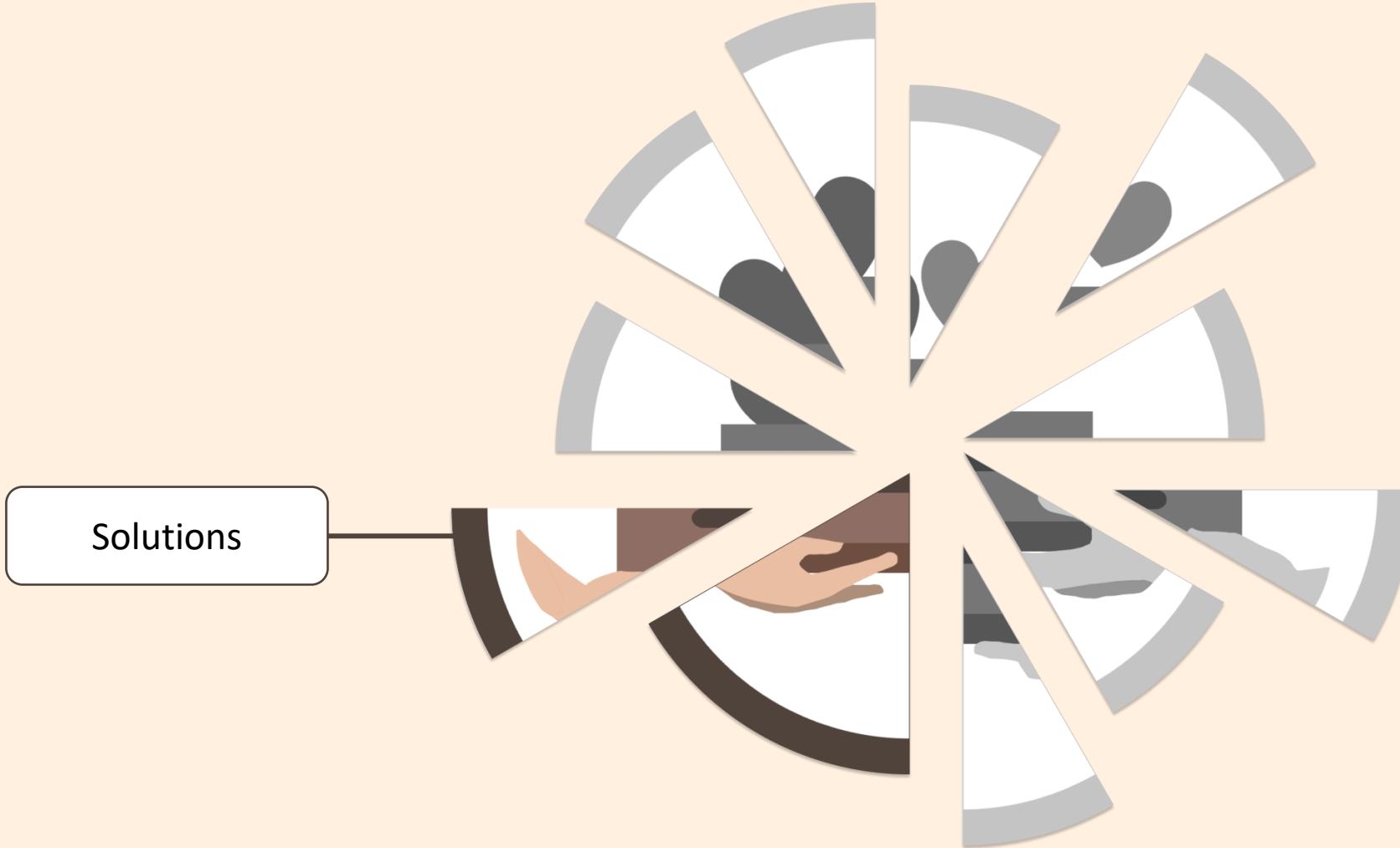
<https://www.nea.gov.sg/our-services/waste-management/waste-statistics-and-overall-recycling>
<https://www.channelnewsasia.com/news/singapore/in-focus-singapore-recycling-sustainability-blue-bins-waste-12972634>



<https://www.nea.gov.sg/our-services/waste-management/3r-programmes-and-resources/waste-management-infrastructure/semakau-landfill>

<https://www.mse.gov.sg/resources/key-environmental-statistics.pdf>

Content



Existing Solutions



3R

Reduce



Recycle

Reverse Vending Machine



Environmental
Public Health
Act (EPHA)

Mandatory Waste
Reporting Exercise



<https://www.nea.gov.sg/our-services/waste-management/mandatory-waste-reporting>

<https://www.channelnewsasia.com/news/singapore/vending-machines-recycle-drink-bottle-cans-grocery-vouchers-12051538>

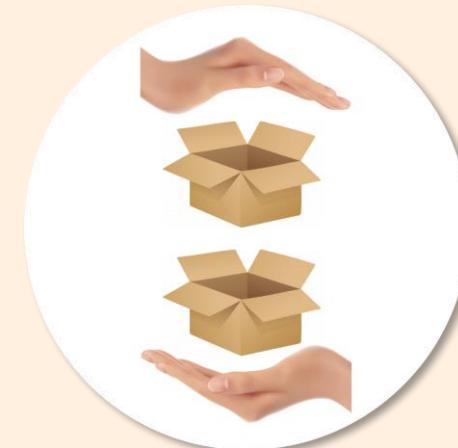
<https://www.nea.gov.sg/our-services/waste-management/mandatory-waste-reporting>

Our Solutions – Giving Approach

Donate



Exchange



Donate - Motivation



<https://www.giving.sg/>

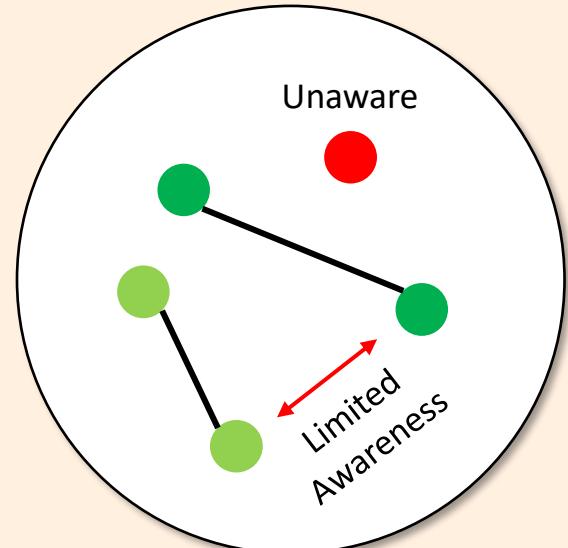
Accessibility Problems

Leaflets

Condominium

Decentralized

Adapt



Unaware

Limited Awareness

Donate



<https://www.charities.gov.sg/Pages/Home.aspx>



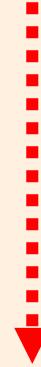
Register Needs



Collect



Select Needs



Give Item

Donate - Features



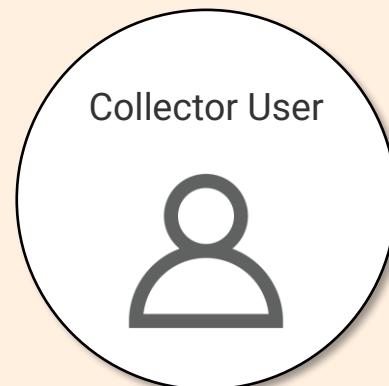
Adapt



Valid Charity
Company



Donor User



Collector User



Administrator
User

Track Needs

Track Donate Item

Select Destination
and Routing

Collector
Management

Collection
Management

System Feedbacks

Capture Donate
Item

Donor
Management

Valid Charity
Company Dataset
API

Collector Feedbacks

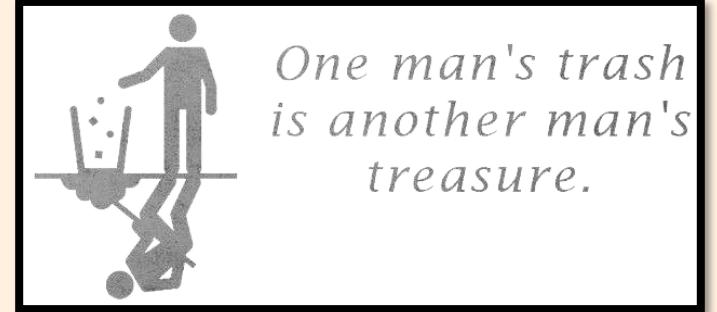
Reward Incentives

Achievements

Company
Verification and
Approval

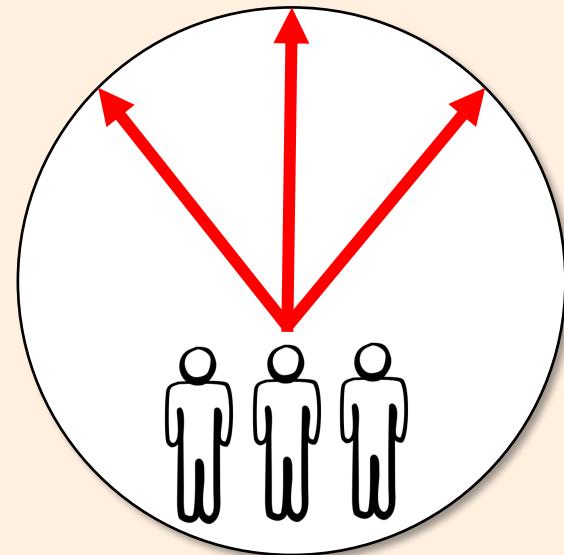
Analysis Dataset

Exchange - Motivation



*One man's trash
is another man's
treasure.*

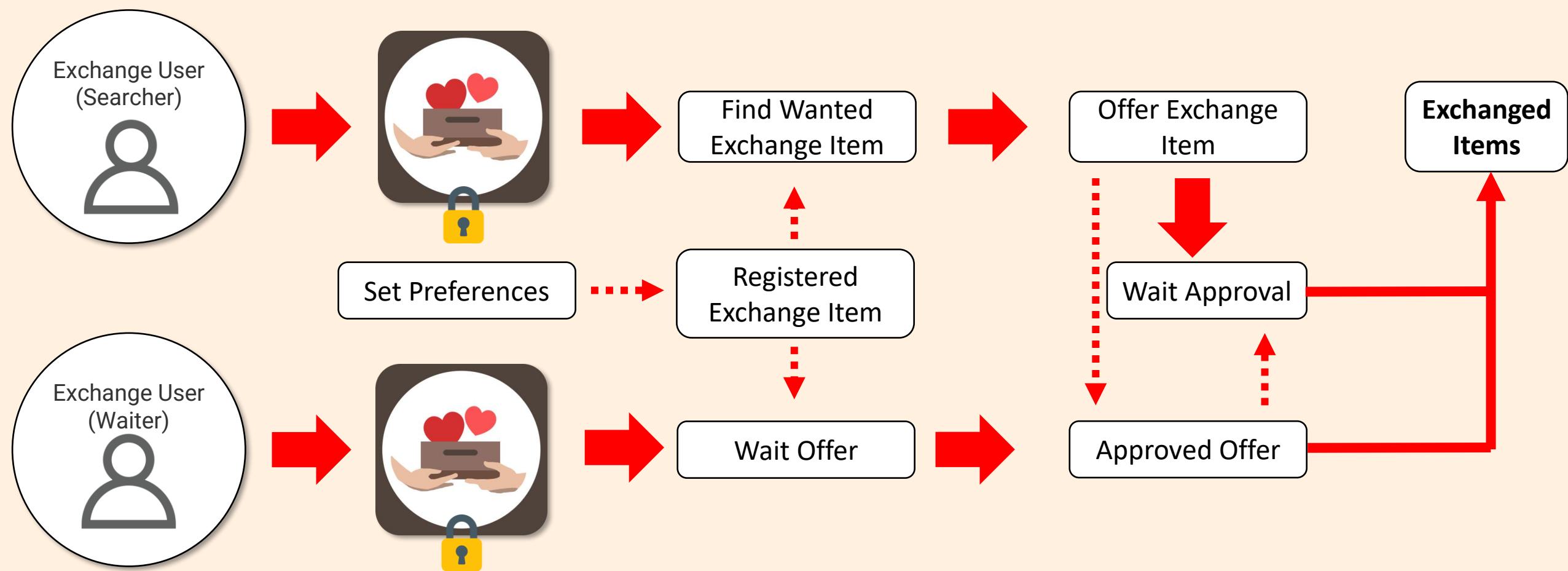
Flexibility



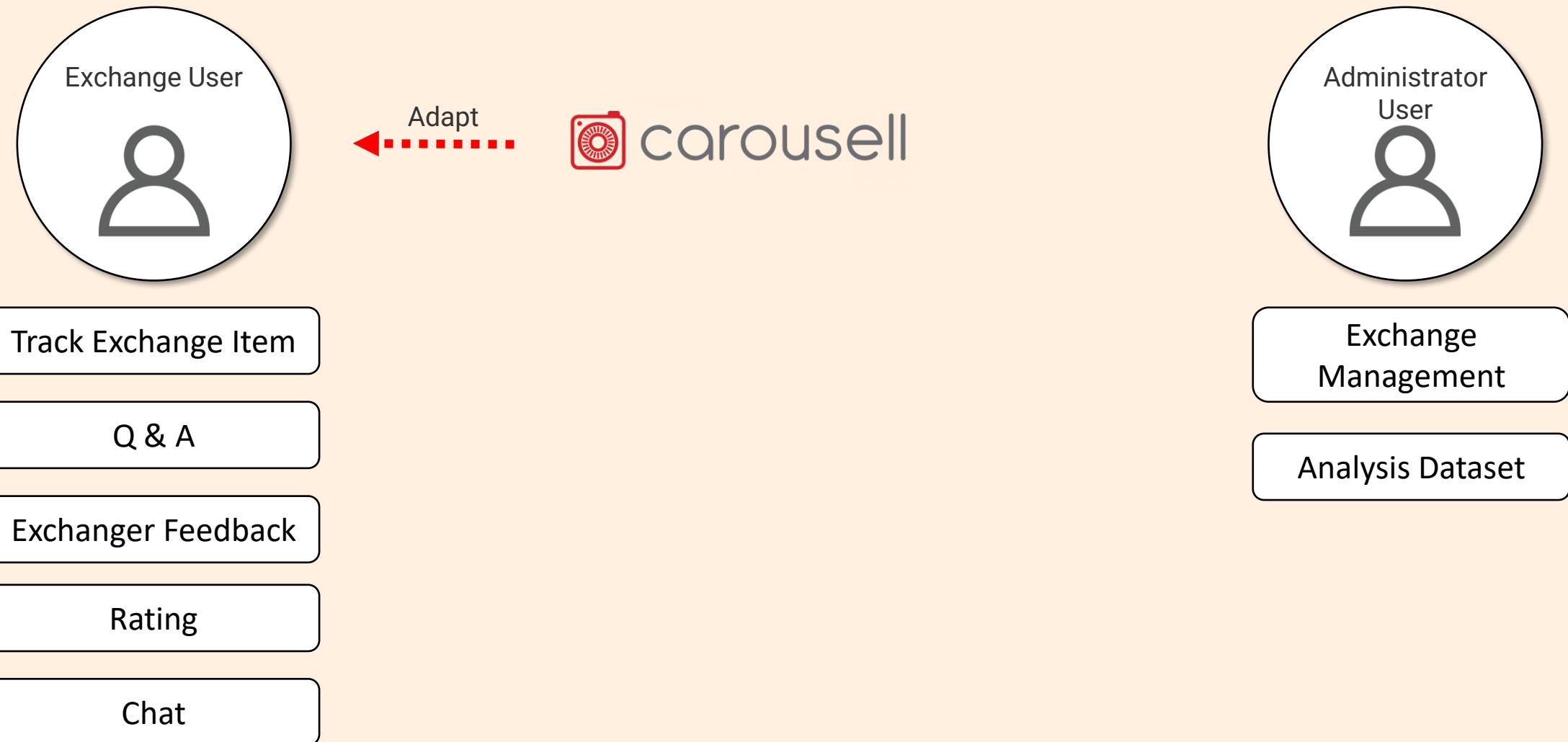
Wanted Something



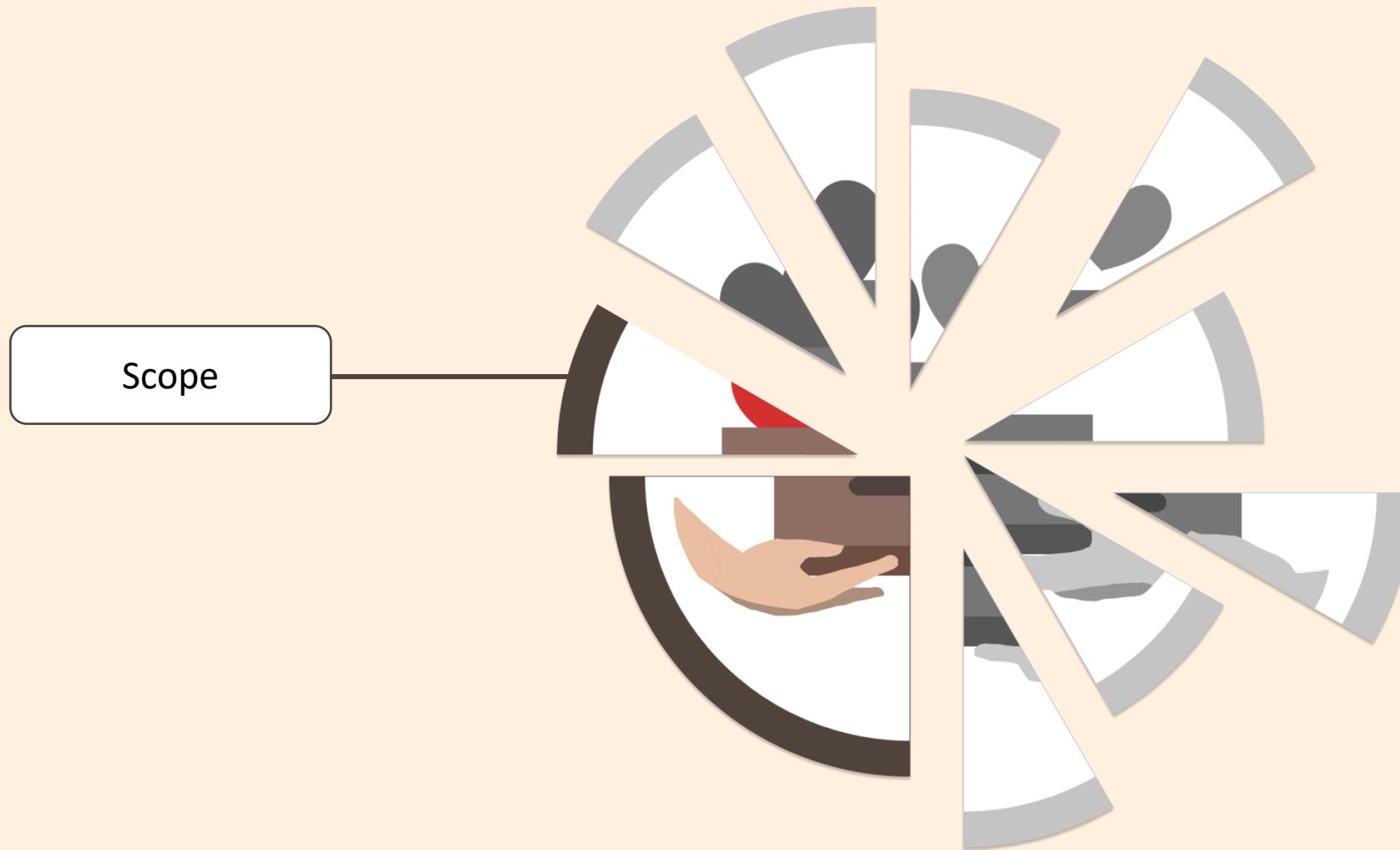
Exchange



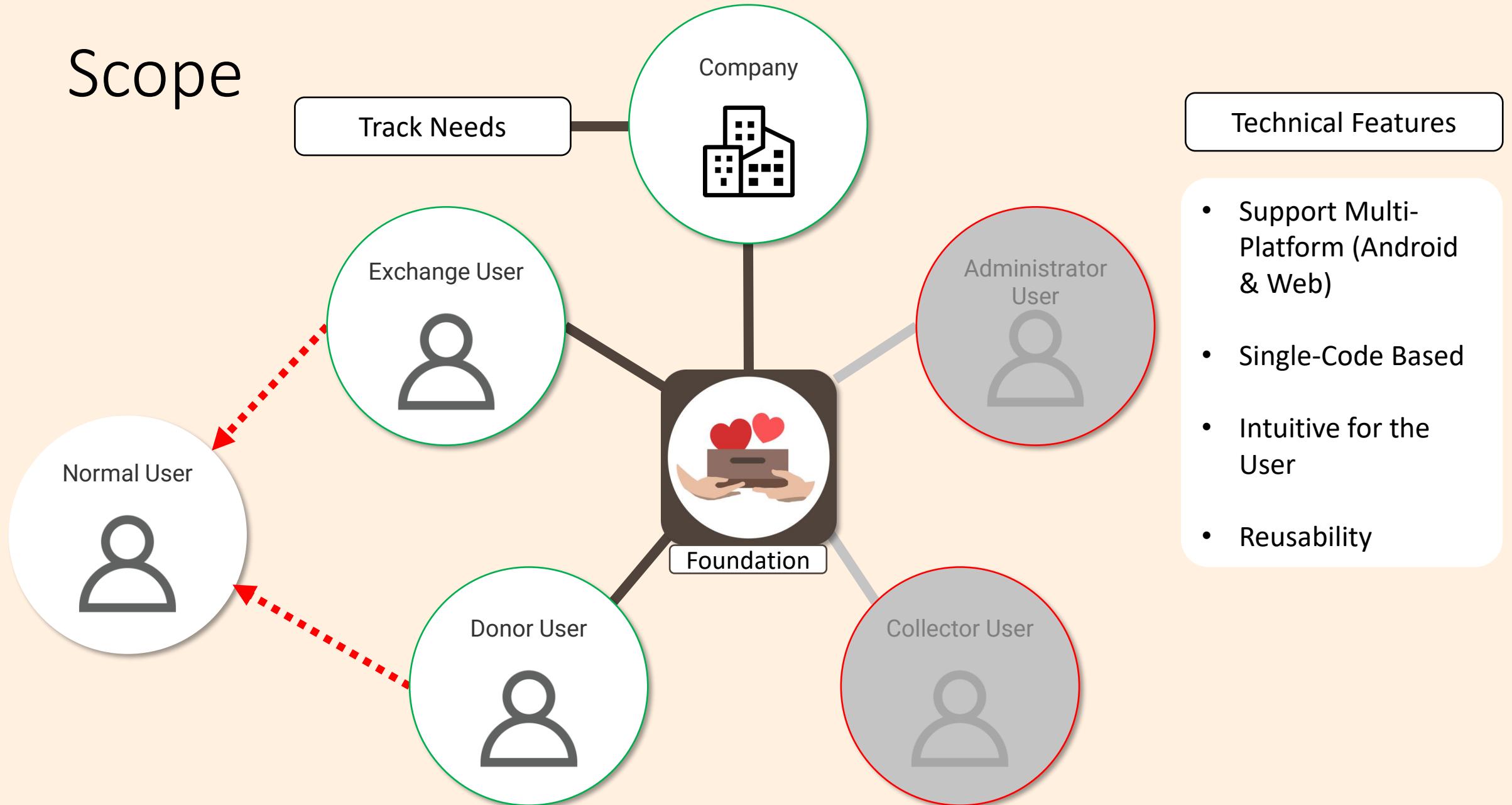
Exchange - Features



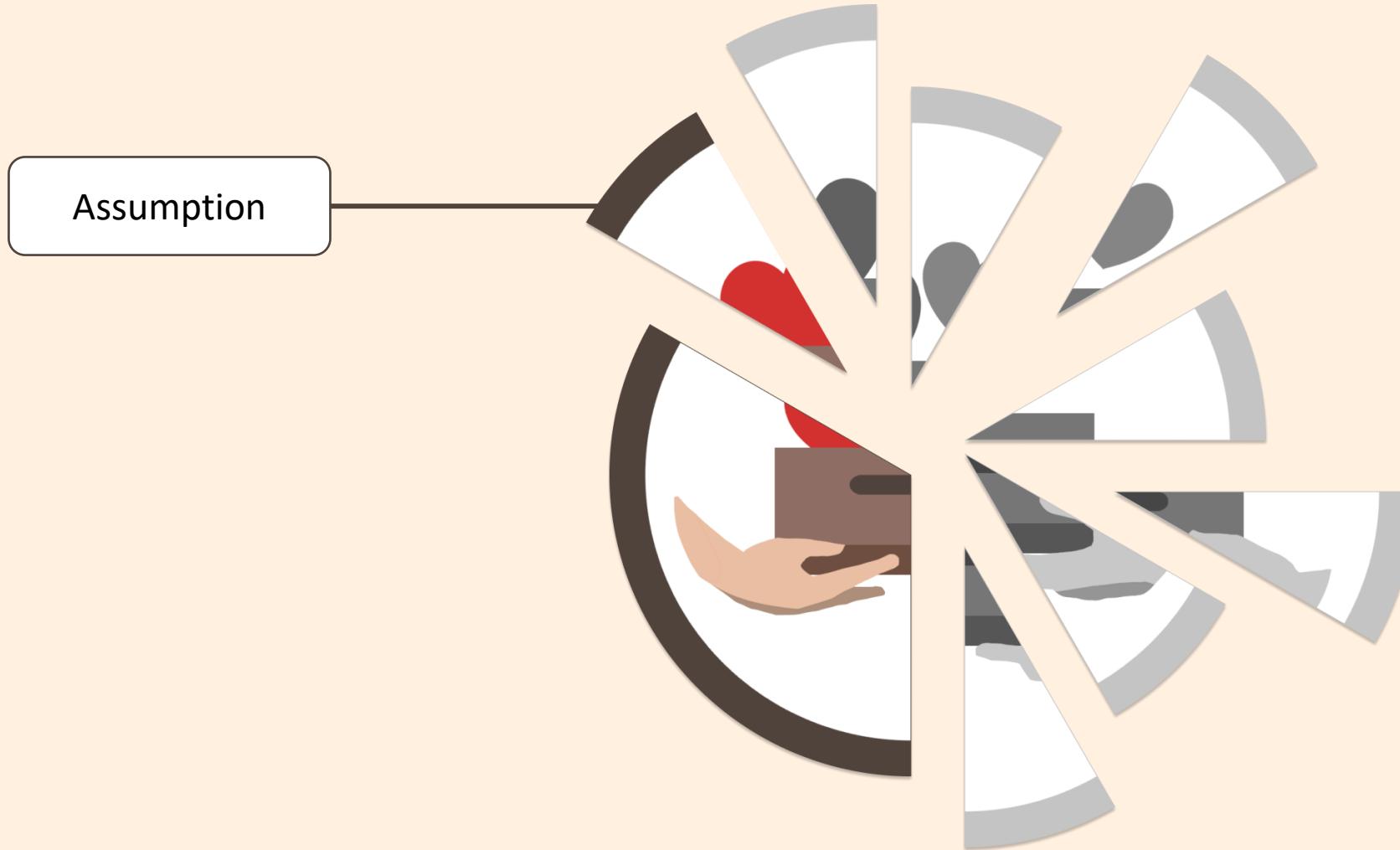
Content



Scope

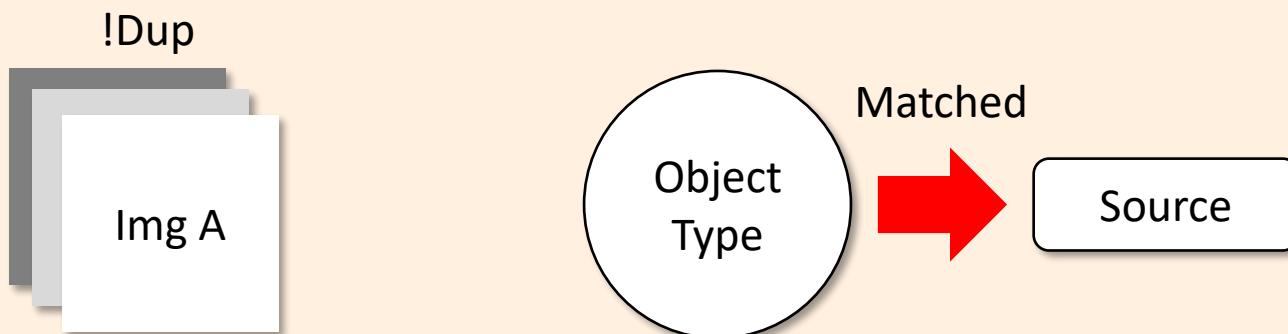


Content



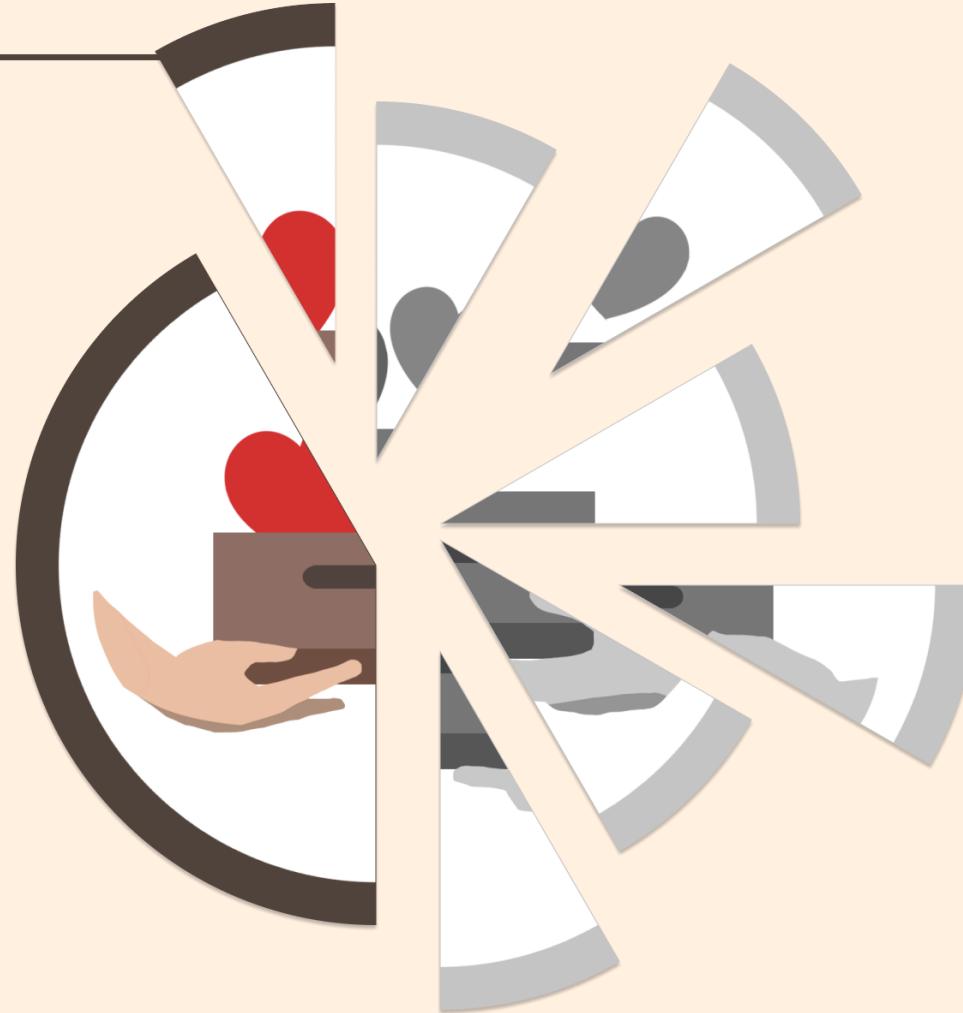
Assumption

1. Approval are given by administrator (i.e Company)
2. There is sponsor(s) for the reward incentives
3. Collector have collected the items (Status : Collected)
4. Normal User place valid and appropriate image(s)

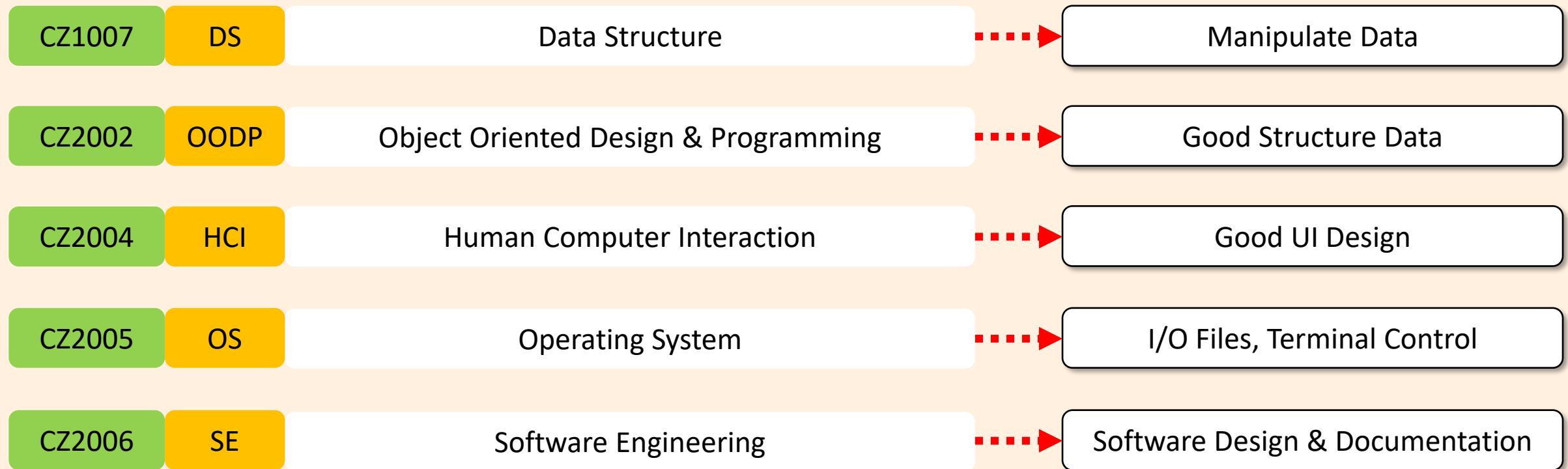


Content

Preparation



Pre-Requisite & Recap



Software Tools

Personal Goal

- New language and knowledge
- Beginner Friendly
- Fast production
- Basic handling as a Full-Stack dev



Flutter

- Hot Reload
- Mobile & Web Platform
- Resourceful



Figma

- Collaboration
- Accessibility
- Mapping to Code



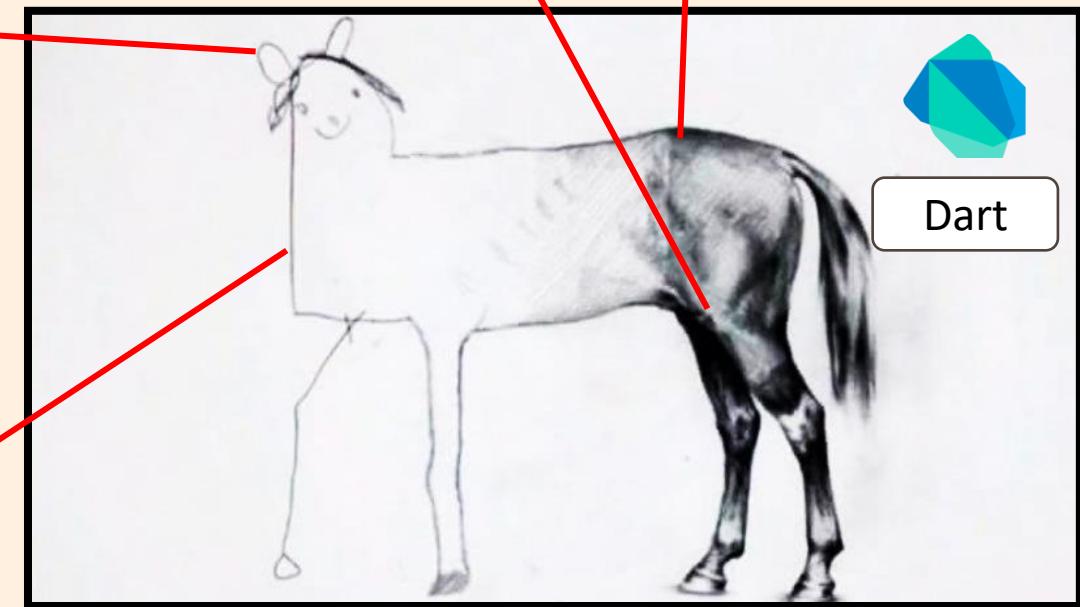
Google Cloud Platform (GCP)

- APIs Service

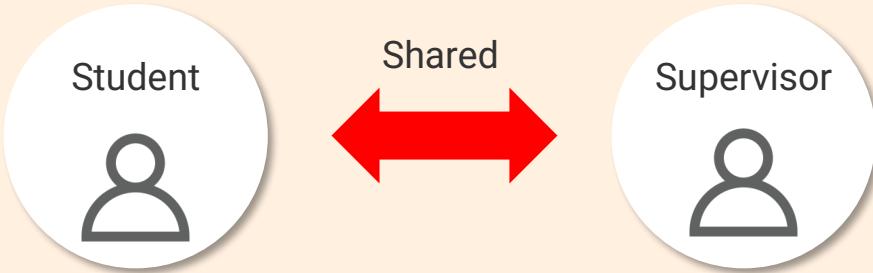


Firebase

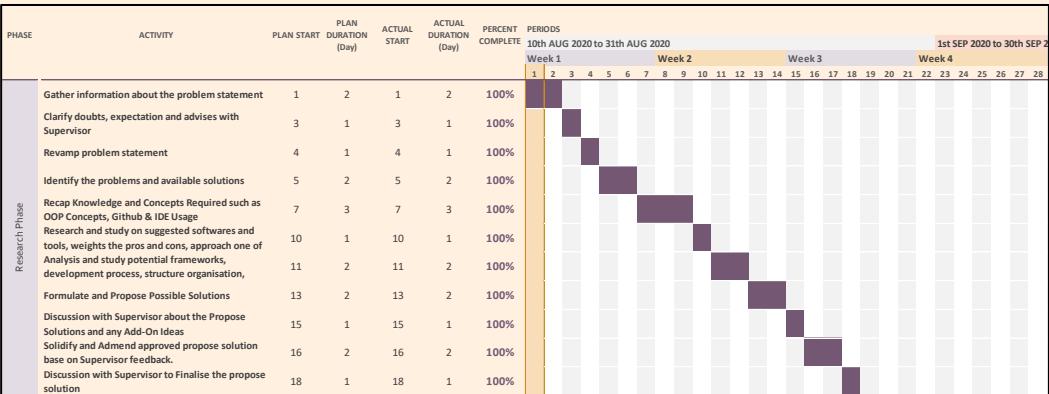
- Real-Time Data Update
- Web Hosting
- Setup Authentication



On-Track



Gantt Chart



https://entuedu-my.sharepoint.com/:x/g/personal/jsam002_e_ntu_edu_sg/Exr3IqLnsytEkr5Cjwc3JXUBOm18G8uP4pAiRmV3YS6GA?e=dQIWma

Phase	Task ID	Classify Sample	Task Title	Task Description	Status	Date Completed	Remarks
Template	I	NA	Task A	Short Desc A (Repeate action)	NA	11.08.2020	About A
Setup	A - 1	NA	Github Repository	Setting Up Workspace to support multi-platform	Completed	11.08.2020	Authentication (Normal E-mail and G-mail)
	A - 2	NA	Backend Setup	Activate Firebase's require API services	Completed	13.08.2020	(initial after approval of proposed design)
	A - 3	Deploy	Generate APK	Allows Tester to test mobile app	Completed	13.08.2020	Initializes after approval of proposed design
	A - 4	Deploy	Hosting Setup	Reporting for tester to test mobile app	Completed	13.08.2020	Initializes after approval of proposed design
	A - 5	Full Stack	Create App Icons like App Bar interface or List View	Allows creating of functional module easily	Completed	17.08.2020	Initializes after approval of proposed design
Experimental	B - 1	NA	Setup Flutter Correctly	Learn how to setup flutter	Completed	10.09.2020	
	B - 2	NA	Execute in Google Chrome for Web Access	Learn how to get web access up	Completed	11.09.2020	
	B - 3	NA	Execute in Samsung S9	Learn how to execute on multiple platform	Completed	11.09.2020	
	B - 4	Full Stack	A Functional User Interface System	Login, Logout, Share Errors	Completed	11.09.2020	
	B - 5	Full Stack	Image Recognition System	Show confidence target(s) with trained Models (Default Model)	Completed	17.09.2020	
	B - 6	Full Stack	Public and Private View with Authentication	Show was is viewable base on non-auth and auth view	Completed	22.09.2020	
	B - 7	Full Stack	Hosting on Web (test)	Ability to host an access by website	Completed	22.09.2020	
	B - 8	Full Stack	Cloudinary (test)	Ability to download and install on mobile device	Completed	25.09.2020	
	B - 9	Full Stack	Create basic CRUD software pattern	Test a widely used pattern allow cleaner code and rigid structure	Completed	25.09.2020	
	B - 10	Full Stack	Simple Coffee Ordering App	To expose the knowledge of firestore CRUD in real time	Completed	13.09.2020	
Foundation	C - 1	Frontend	Section Page / Rename classify (fullscreen)	Show working section page	Completed	22.11.2020	
	C - 2	Frontend	Clickable / Clickable icon	Show working icon	Completed	22.11.2020	
	C - 3	Frontend	Clickable / Touchable Text	Show working Textbox with Text Content	Completed	16.11.2020	
	C - 4	Frontend	Clickable / Touchable Image	Show working Interactable Image	Completed	17.11.2020	
	C - 5	Frontend	Drop Menu	Show working dropdown menu	Completed	29.01.2021	Long list need better widget to support rendering
	C - 6	Frontend	Drop Scroller	A tooltip appearance on just scroll theme	Completed	29.01.2021	
	C - 7	Frontend	Listing Objects in body content	Show listing in right sizing for desktop	Completed	17.11.2020	
	C - 8	Frontend	Show Textbox	Show working textbox	Completed	16.11.2020	
	C - 9	Frontend	Show Scroll Bar	Scrollbar should be correct	Completed	16.11.2020	
	C - 10	Frontend	Show Text Content	Scrollbar should be correct	Cancelled	03.11.2020	Discard
	C - 11	Frontend	Hover Trigger (Desktop)	Hover should respond a pop out / fade in changes to the element	Cancelled	15.11.2020	Not working well for Web when window resize
	C - 12	Frontend	Multi-tags show content in the same page	A overlay for effect/alert/warning purpose , open and close	Cancelled	15.12.2020	It need bloc mechanism
	C - 13	Frontend	Multi-tags show content in the same page	Show different content on one page	Cancelled	15.11.2020	
	C - 14	Frontend	Multi-tags show content in the same page	Design a effect when trigger an action	Cancelled	03.11.2020	Done together with GPS
	C - 15	Frontend	Nearby Number	Ability to setup pin-point in a map	Cancelled	14.01.2021	Downscale to non-dynamic but clickable chart
	C - 16	Frontend	Singapore Map with Pin-Point	Step version / fluid style	Cancelled	14.01.2021	Tipcase the branch effect
	C - 17	Frontend	Fill Bar Effect depend on value	Step version / fluid style	Cancelled	03.11.2020	Cancelled
	C - 18	Frontend	Ability to generate a nice tree base on a set of relation values	Ability to generate QR code from string	Cancelled	03.11.2020	QR can't offer such function
	C - 19	Frontend	Dynamic Slider	Changes base on user interaction	Cancelled	03.11.2020	Implemented with GPS system
	C - 20	Frontend	Overlay Camera	To show the result after image processing	Cancelled	03.11.2020	Cancelled
	C - 21	Frontend	Implement Page Not Found	Bind user to another page	Cancelled	27.11.2020	For mobile it serve as user encounter fatal error
	C - 22	Frontend	Image Calibration	Red image to standard image	Cancelled	03.11.2021	Changed design requirement therefore not implemented
	C - 23	Backend	Search Algorithm	Searching base on preferences and default	Completed	14.11.2020	Workaround with image picker package
	C - 24	Backend	Routing Page (Push-Pop)	Going to pages back and forth	Completed	03.11.2021	Is part of the implemented design in A4
	C - 25	Backend	Send and Receive data from Firestore	Workable storage function (text data)	Completed	25.11.2020	
	C - 26	Backend	Send, Received data from Storage	Workable storage function (image data)	Completed	25.11.2020	
	C - 27	Backend	Authentication System (Normal Email)	A login and logout function using non-Gmail	Completed	26.12.2020	
	C - 28	Backend	Authentication System (G-Mail)	A login and logout function using Gmail	Completed	26.12.2020	
	C - 29	Backend	Public and Private View	Control base on authentication and other possible condition	Cancelled	26.12.2020	
	C - 30	Backend	Drop Box	Download APK file	Cancelled	26.12.2020	
	C - 31	Backend	Listing Changes and Control	Update Listing in Real Time	Cancelled	29.12.2020	
	C - 32	Backend	Create Random Spread Tree-Like with Weights using Seed	A algorithm for reward system	Cancelled	04.01.2021	
	C - 33	Backend	Algorithm to generate a tree base on a given data	QR code for change account purpose	Cancelled	04.01.2021	
	C - 34	Backend	Get permission from phone	Ask permission from Mobile OS	Cancelled	04.01.2021	
	C - 35	Backend	GPS get xyz coordinates	To display pin-point or require GPS as dependencies	Cancelled	04.01.2021	
	C - 36	Backend	Gov (Web Scrap / API) list of register charity website	To verify new charity organisation	Cancelled	03.12.2020	
	C - 37	Backend	Camera feature from phone	unlock camera by the use camera	Cancelled	03.12.2020	
	C - 38	Backend	Comments feature from phone	Take a picture of the model	Cancelled	27.12.2020	
	C - 39	Backend	Comments feature from phone	Image Processing using latest tech	Cancelled	27.12.2020	
	C - 40	Backend	Image processing Algorithm	Create a model for JustGivit Context	Cancelled	27.12.2020	
	C - 41	Backend	Training Model for JustGivit Context	Time constraint	Cancelled	27.12.2020	

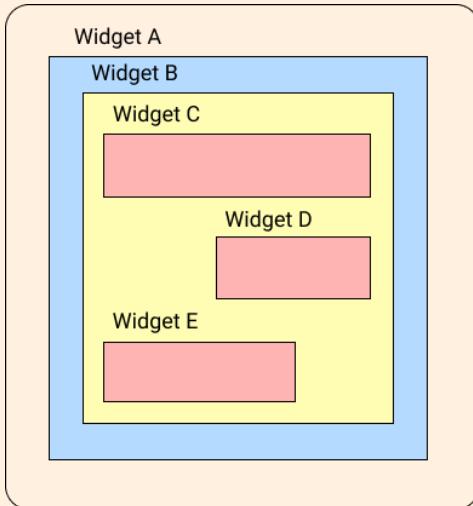
https://entuedu-my.sharepoint.com/:x/g/personal/jsam002_e_ntu_edu_sg/EeHCes08LGJ0rrbXq4Xta8wBm6G62dyJX1N1fZPlqSQuZQ?e=mDGvJ7

Terminologies



Widgets

- Construct UI



Concept Screen

Stateless

- UI **don't change** during Run-Time



Main Screen

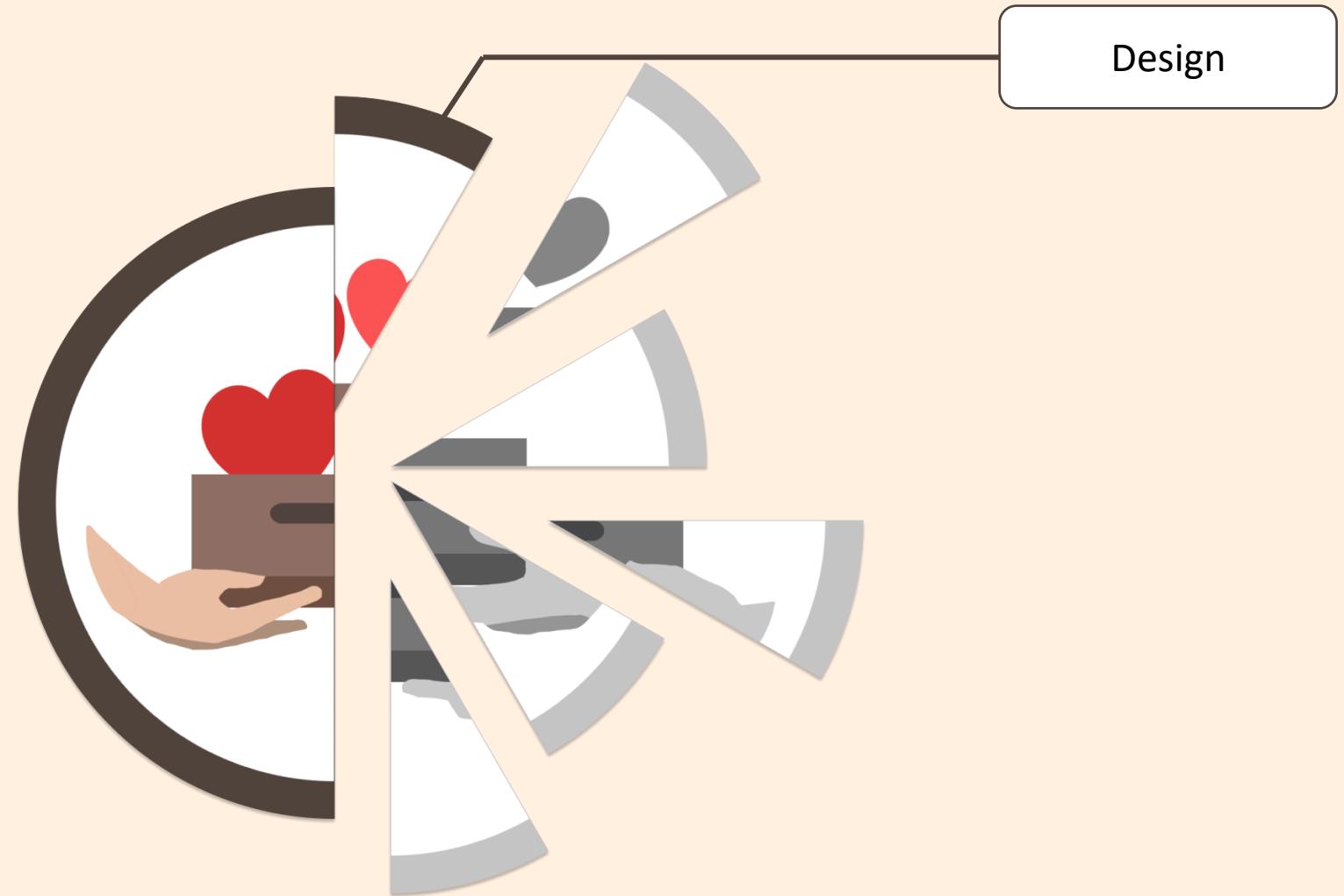
Stateful

- UI **may change** during Run-Time

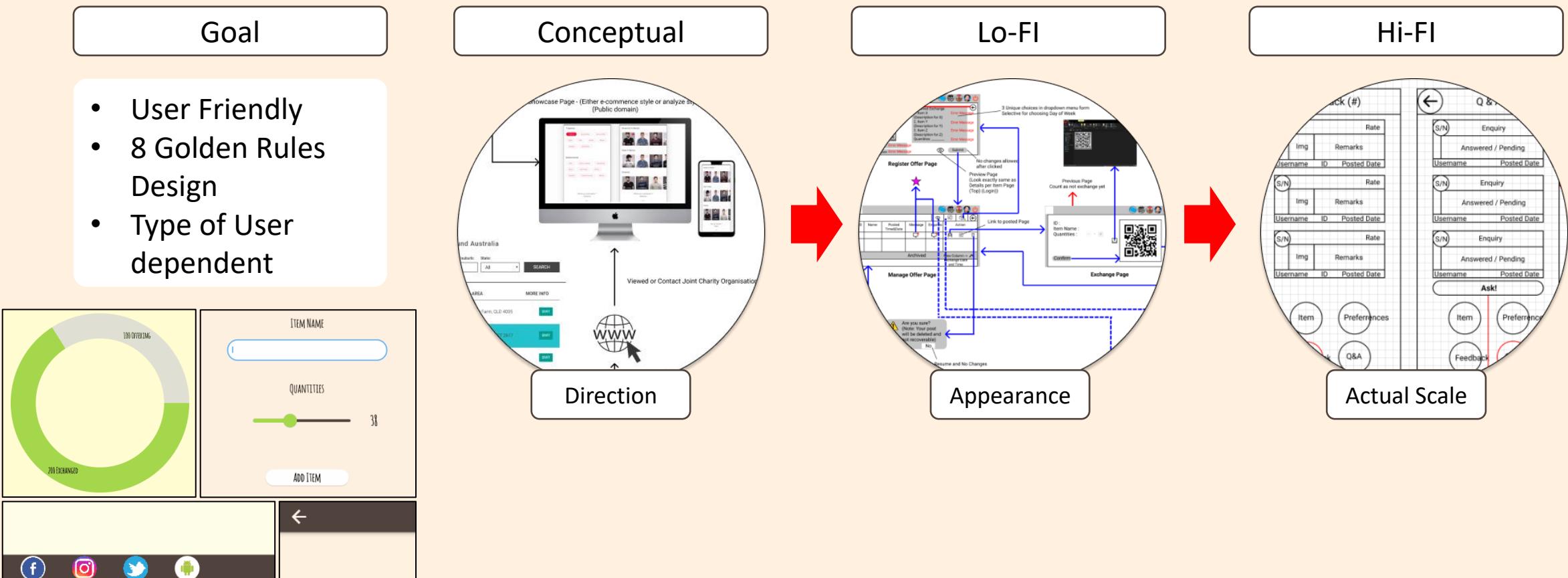


Login Screen

Content

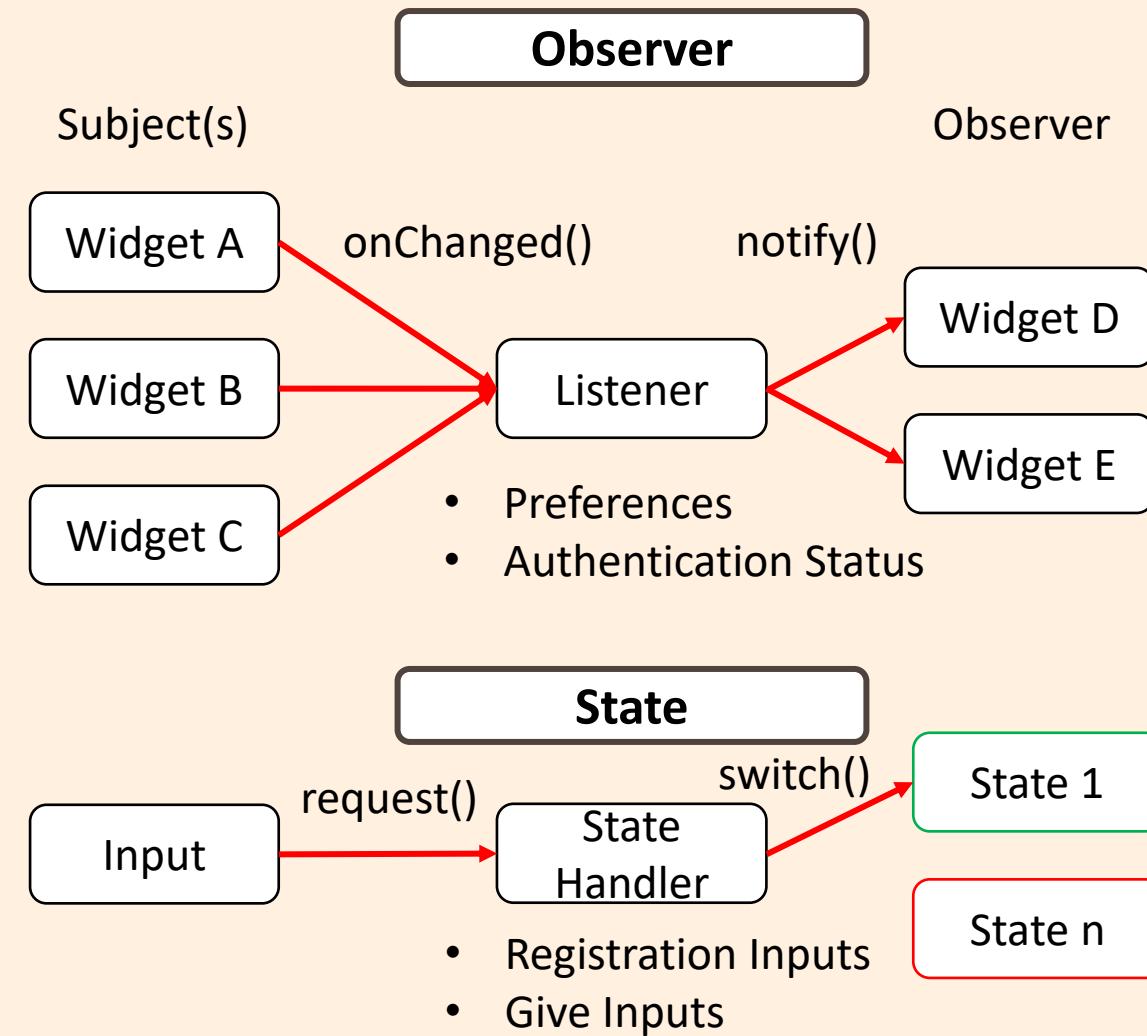
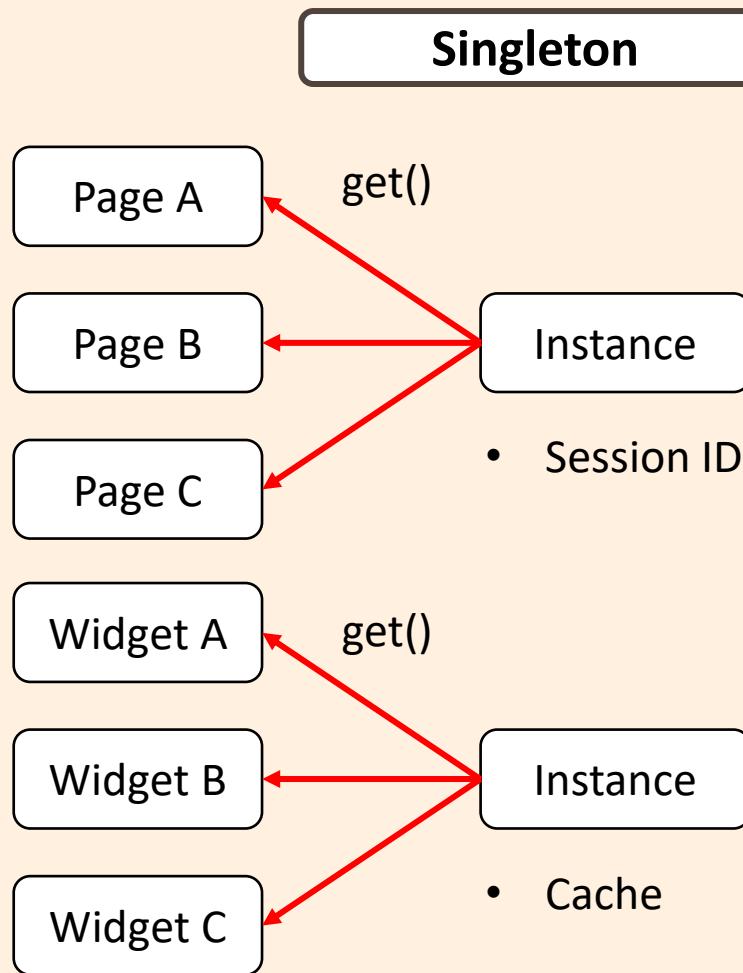


Design UI

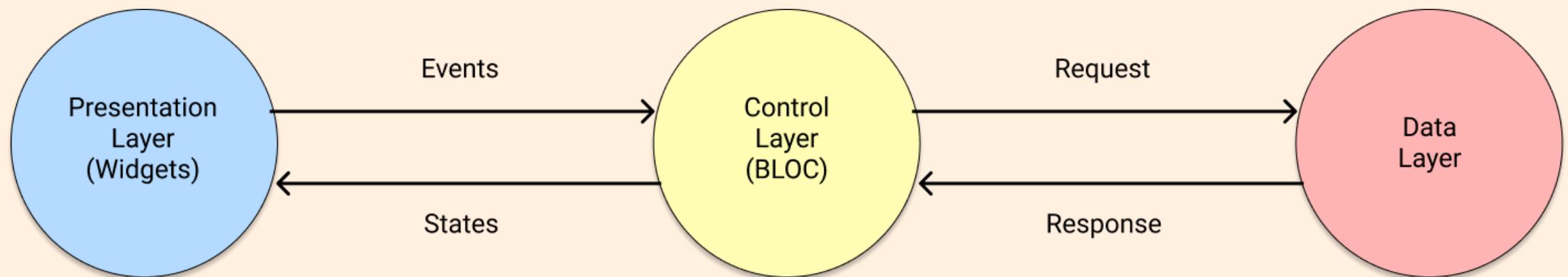


Conceptual Design : https://www.figma.com/file/V6NXE5wsfpmek00pg5weUZ/FYP_Justgivit?node-id=0%3A1
 Lo-FI Design : https://www.figma.com/file/V6NXE5wsfpmek00pg5weUZ/FYP_Justgivit?node-id=17%3A2
 Hi-FI Design : https://www.figma.com/file/V6NXE5wsfpmek00pg5weUZ/FYP_Justgivit?node-id=358%3A0

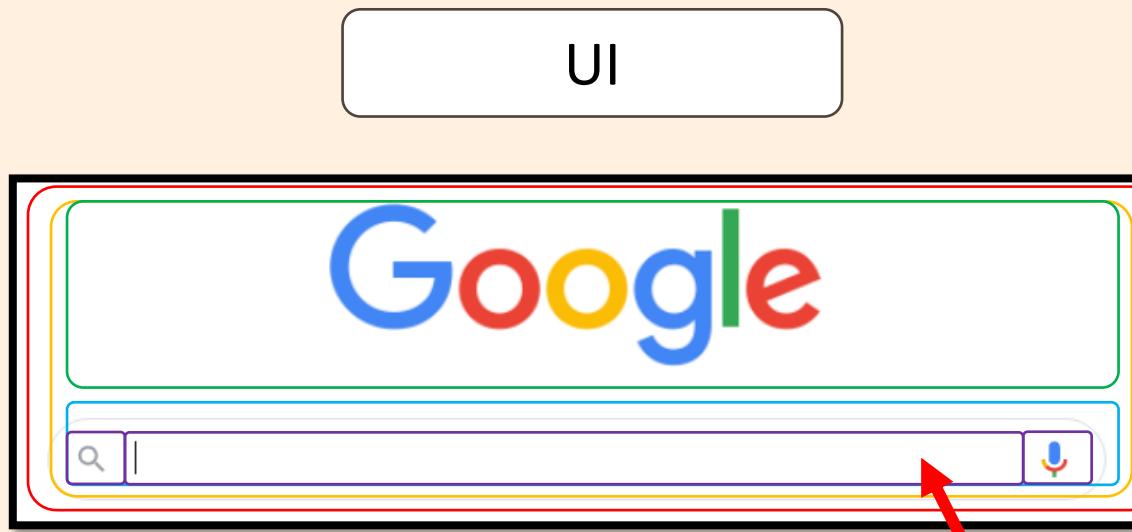
Design Software Pattern



Design Software Architecture (Overview)



Design Software Architecture (Presentation)



- Many Solutions

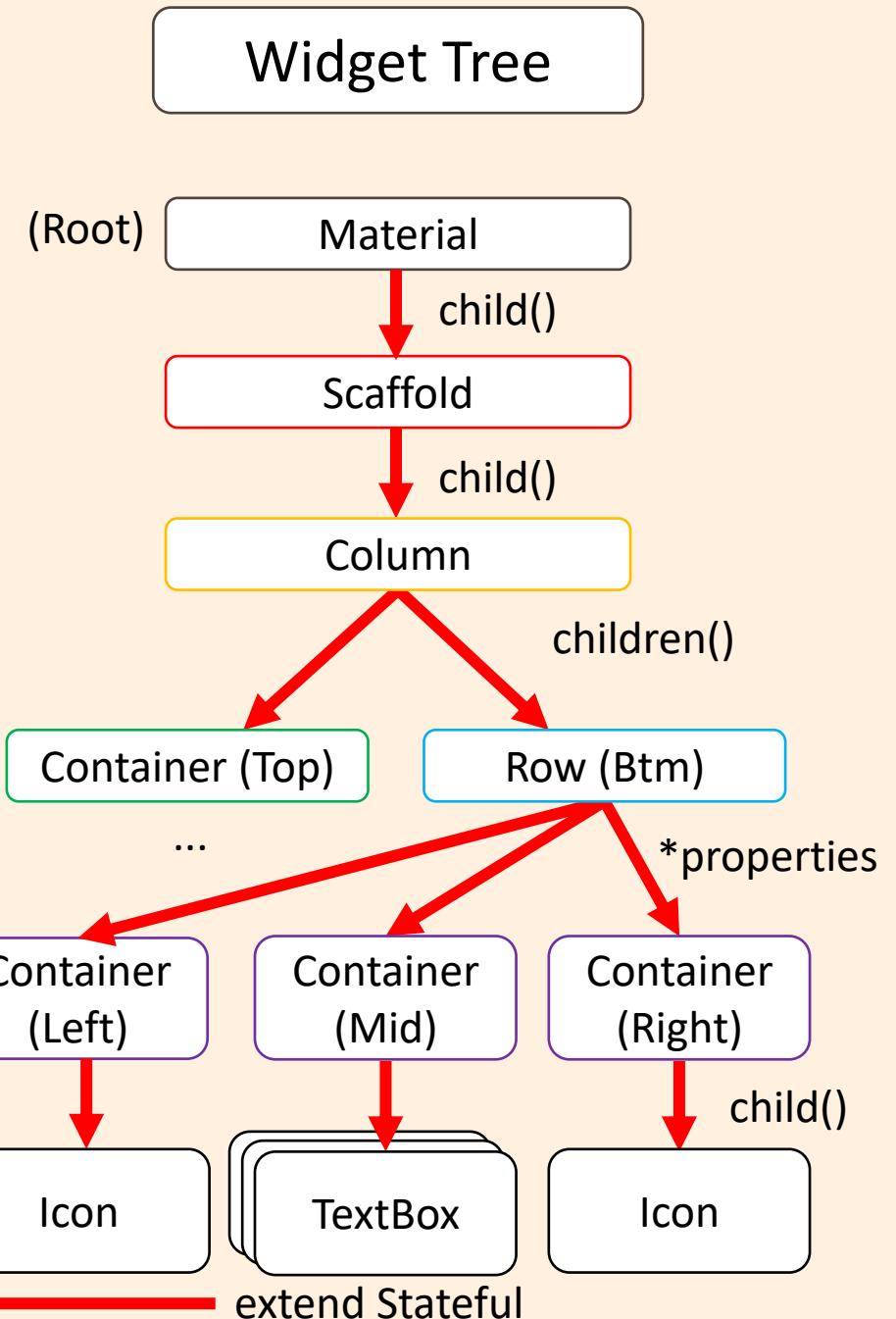
BLOC Mechanism:

1. `setState(){}` is removed
2. Stateful → Stateless

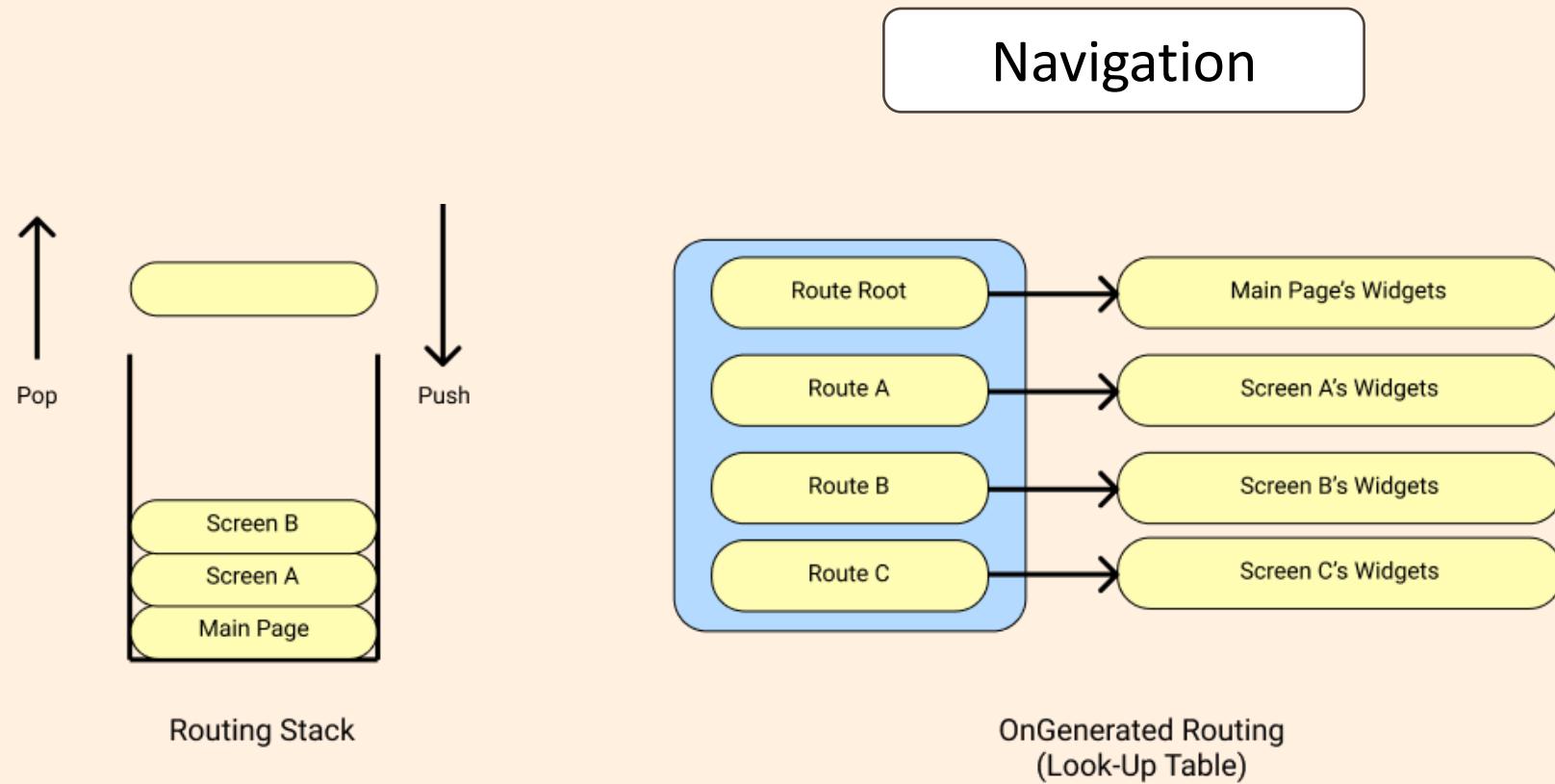
Maintainability Issues

Re-render

`setState(){}`



Design Software Architecture (Presentation)

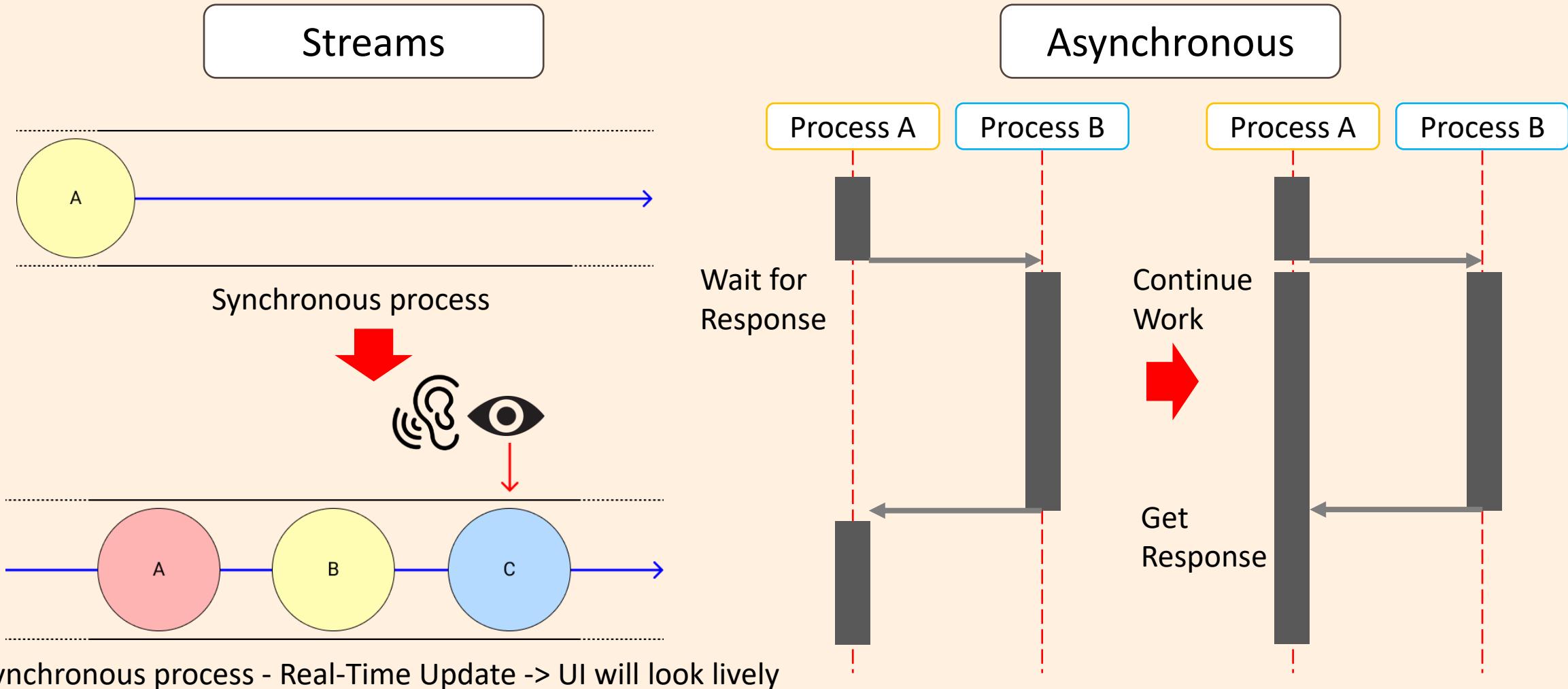


```
ButtonTextRect(  
  event: () {  
    Navigator.of(context).pushNamedAndRemoveUntil(  
      TO.MAIN_SCREEN, (route) => false);  
    Navigator.of(context)  
      .pushNamed(TO.STATUS_DONATE_SCREEN);  
  },
```

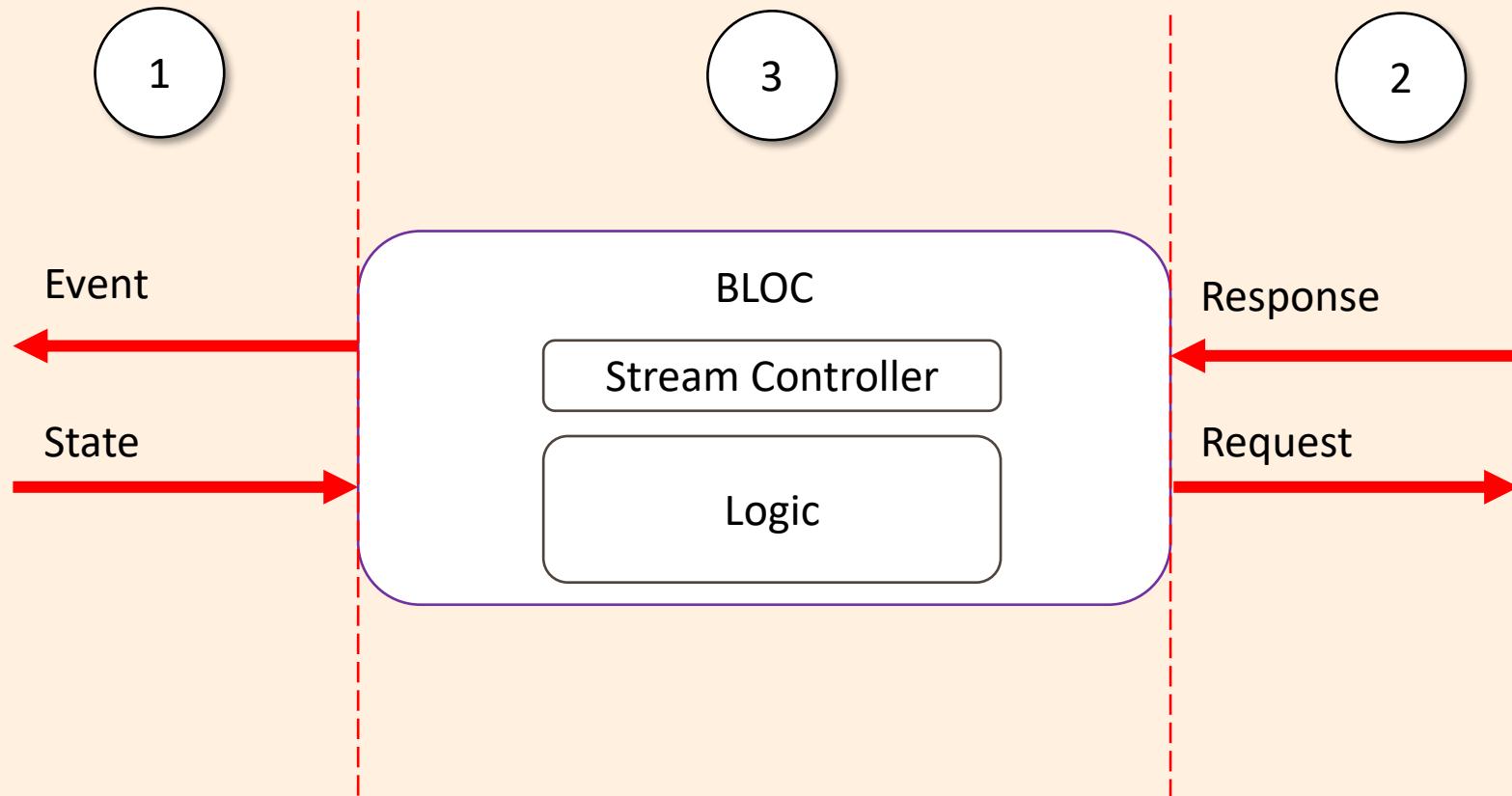
```
/// The navigation of the mobile application  
class MobileRouter {  
  Provider _provider = Provider();  
  Route onGenerateRoute(RouteSettings routeSettings) {  
    // Null safety checks  
    if (routeSettings.name == null) {  
      if (D.DEBUG) print('[Route] NULL');  
      return throw Exception();  
    } else {  
      if (D.DEBUG) print('[Route] ${routeSettings.name.toString()}');  
      switch (routeSettings.name) {  
        case TO.MAIN_SCREEN:  
          return MaterialPageRoute(  
            settings: routeSettings,  
            builder: (context) => _provider.toMain());  
  
        // Auth  
        case TO.CHANGE_PASSWORD_SCREEN:  
          return MaterialPageRoute(  
            settings: routeSettings,  
            builder: (context) => ChangePasswordScreen()); // Materi
```

Design Software Architecture (BLOC Layer)

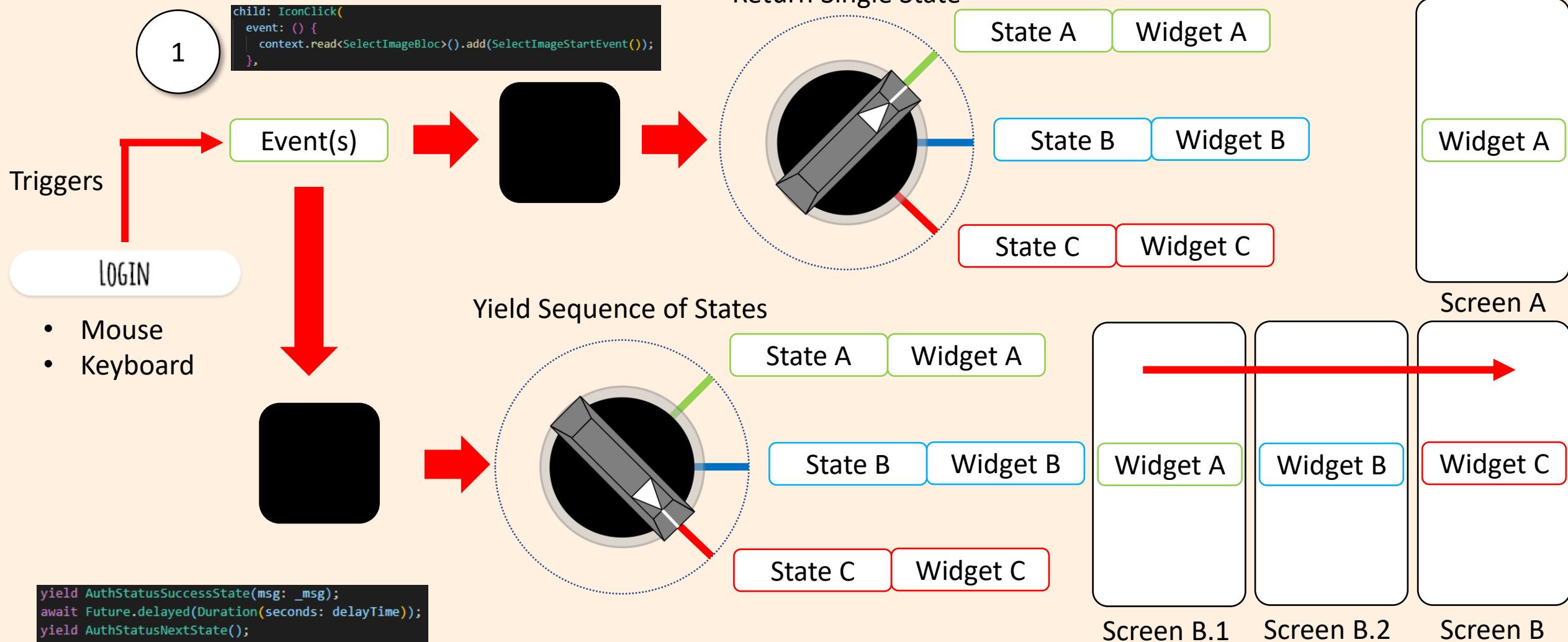
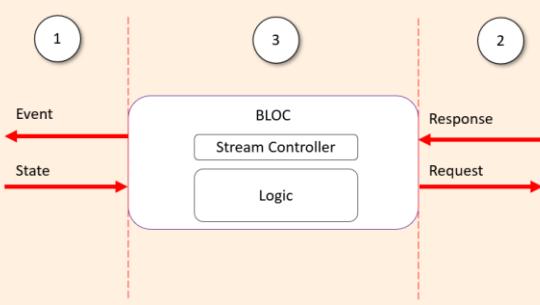
```
Future<void> getSelectedNeedsData() async {  
  
Stream<StreamChatState> mapEventToState(  
| StreamChatEvent event,  
) async* {
```



Design Software Architecture (BLOC Layer)

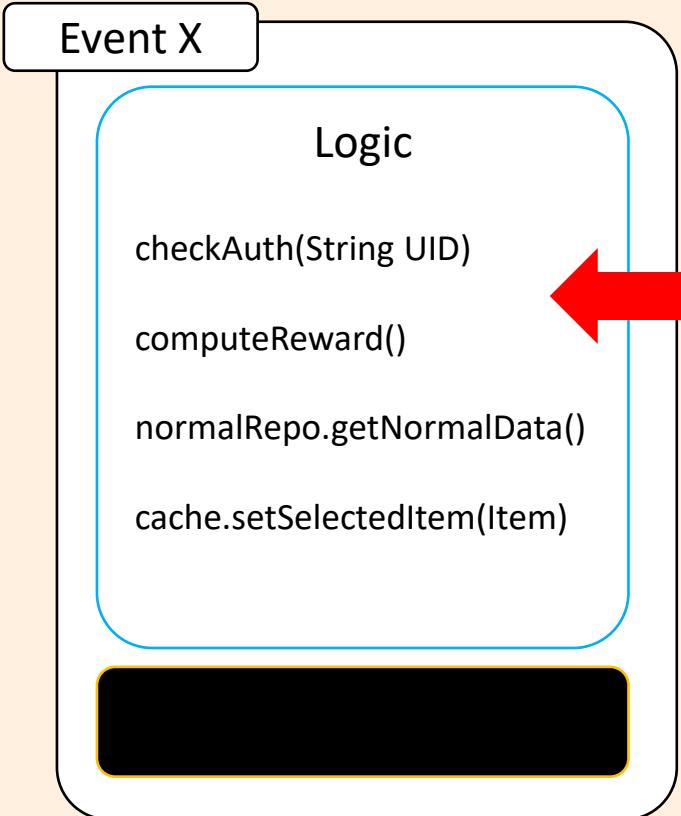


Design Software Architecture (BLOC Layer) – Event & State



Design Software Architecture (BLOC Layer) – Request & Response

2



Key Purpose

1. Getter or Setter Data
2. Compute Data
3. Check Input Data
4. Invoke CRUD operation

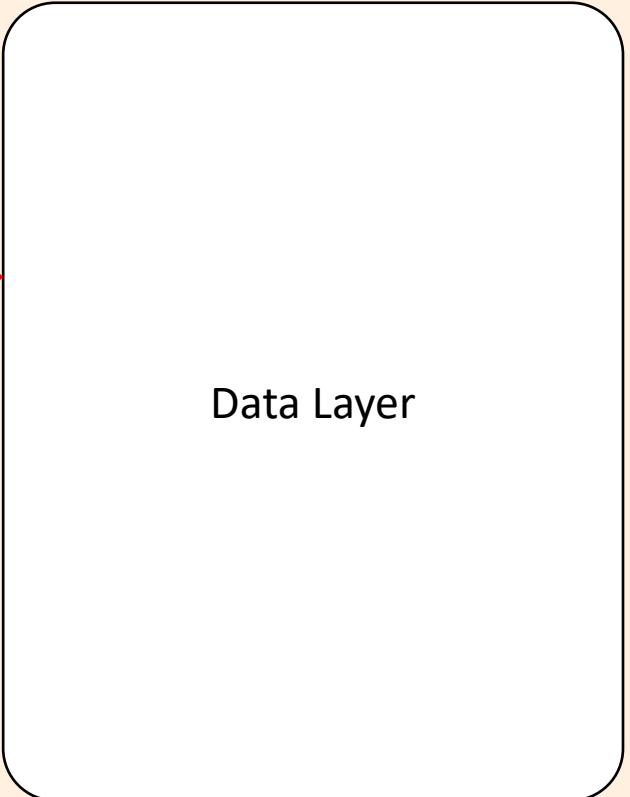
Data Type

1. Double/Int
2. Defined Object
3. String
4. List
5. Bool
6. Stream

if (event is LoadRewardStartEvent) {
 /// Get Current UID
 _uid = await _session.get("UID");

 /// Get Self Normal Data
 _documentSnapshot = await _normalRepo.readNormalSelfData(uid: _uid);

 yield LoadRewardLoadedState(
 value: _documentSnapshot.data()[F.REWARD_POINT]
)
}

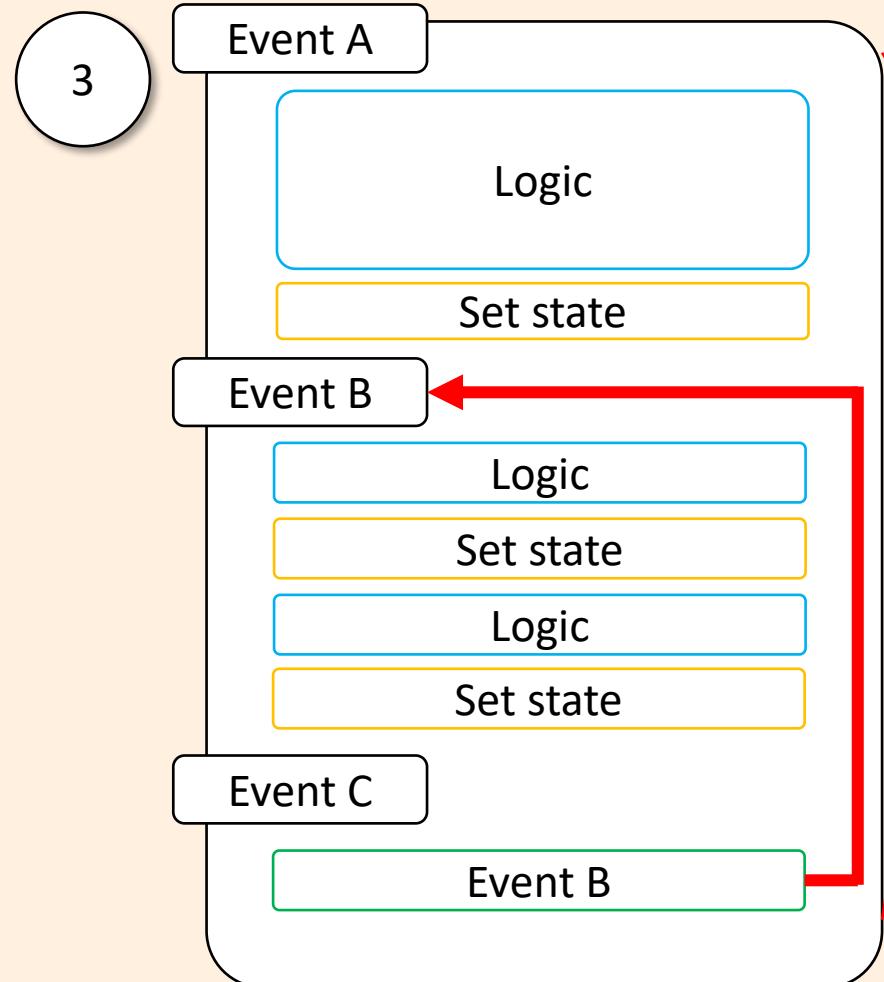


1

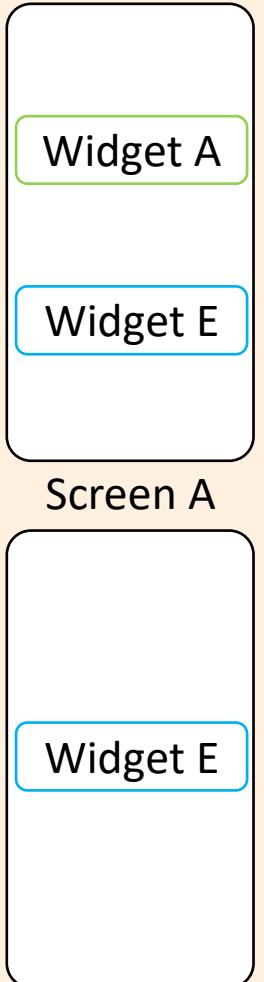
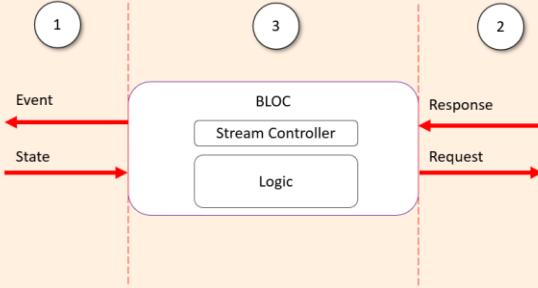
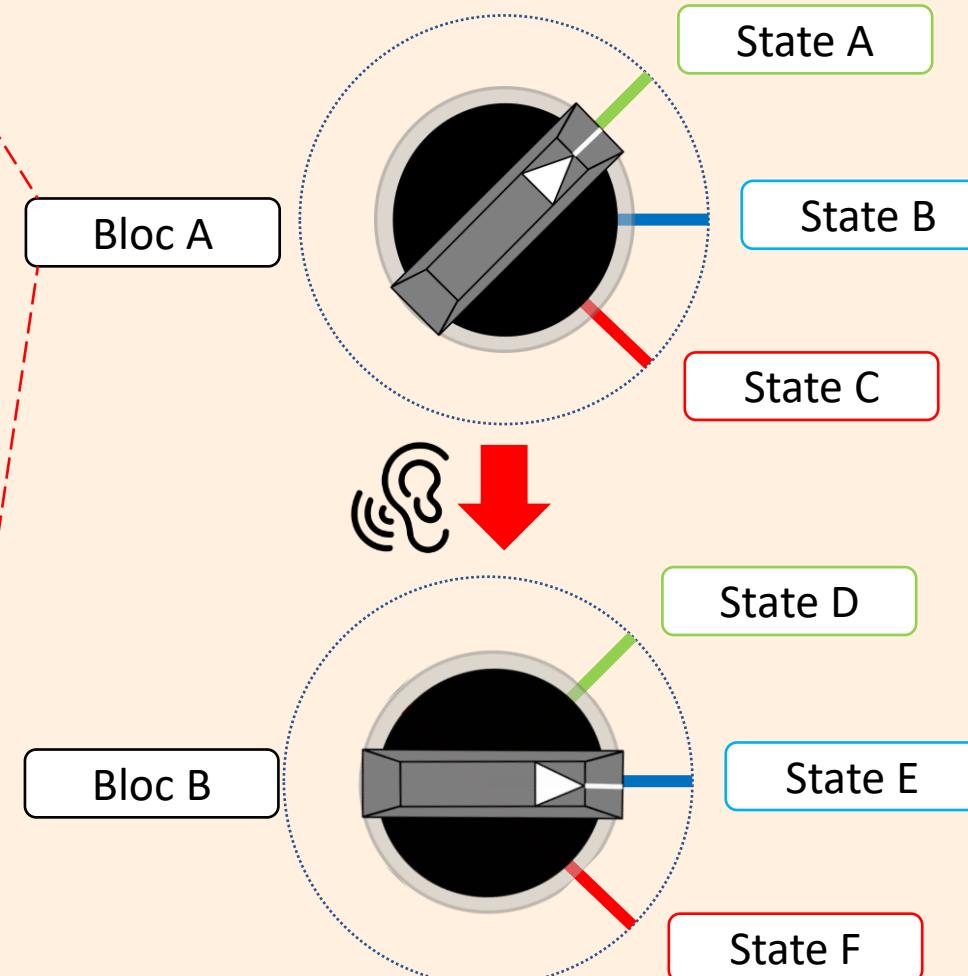
3

2

Design Software Architecture (BLOC Layer) – BLOC



Bloc to Bloc Communication



Screen B

Design Software Architecture (BLOC Layer) – BLOC

Represent top portion of the BLOC with its constructor

Other BLOC Instance

```
class MatchStringBloc extends Bloc<MatchStringEvent, MatchStringState> {  
    final VerifyPasswordBloc _verifyPasswordBloc;  
    MatchStringBloc({@required verifyPasswordBloc, @required Cache cache})  
        : this._verifyPasswordBloc = verifyPasswordBloc,  
          this._cache = cache,  
          super(MatchStringInitialState());  
    _verifyPasswordBloc.listen((state) {  
        if (state is VerifyPasswordLoadingState) {  
            if (D.DEBUG)  
                print(  
                    '[Event-Listen] Matching String == Verify Password ${state.value}');  
            _givenString = state.value;  
        }  
    });  
}
```

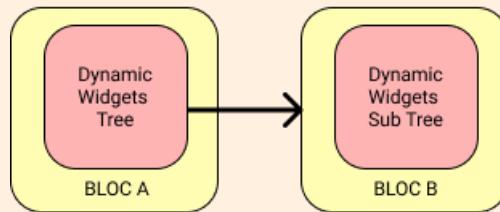
If the state is this



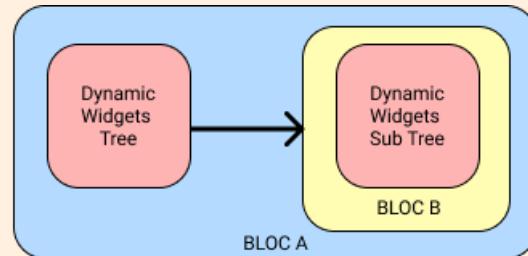
Listen to Other BLOC current state

1. Get Other state value
2. Do something else to this BLOC

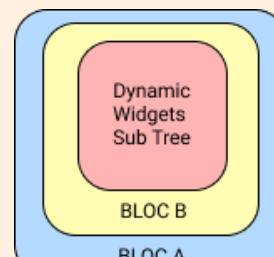
Design Software Architecture (BLOC Layer) – BLOC Features



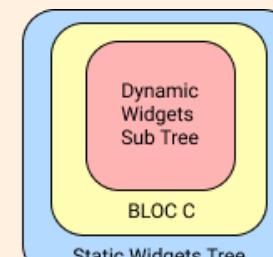
Local BLOC



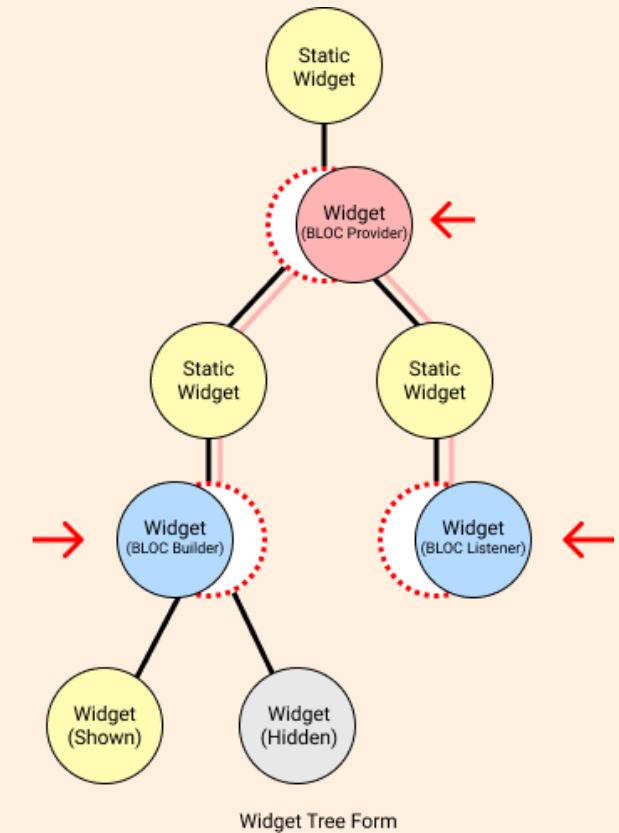
Global BLOC



Multi-BLOC



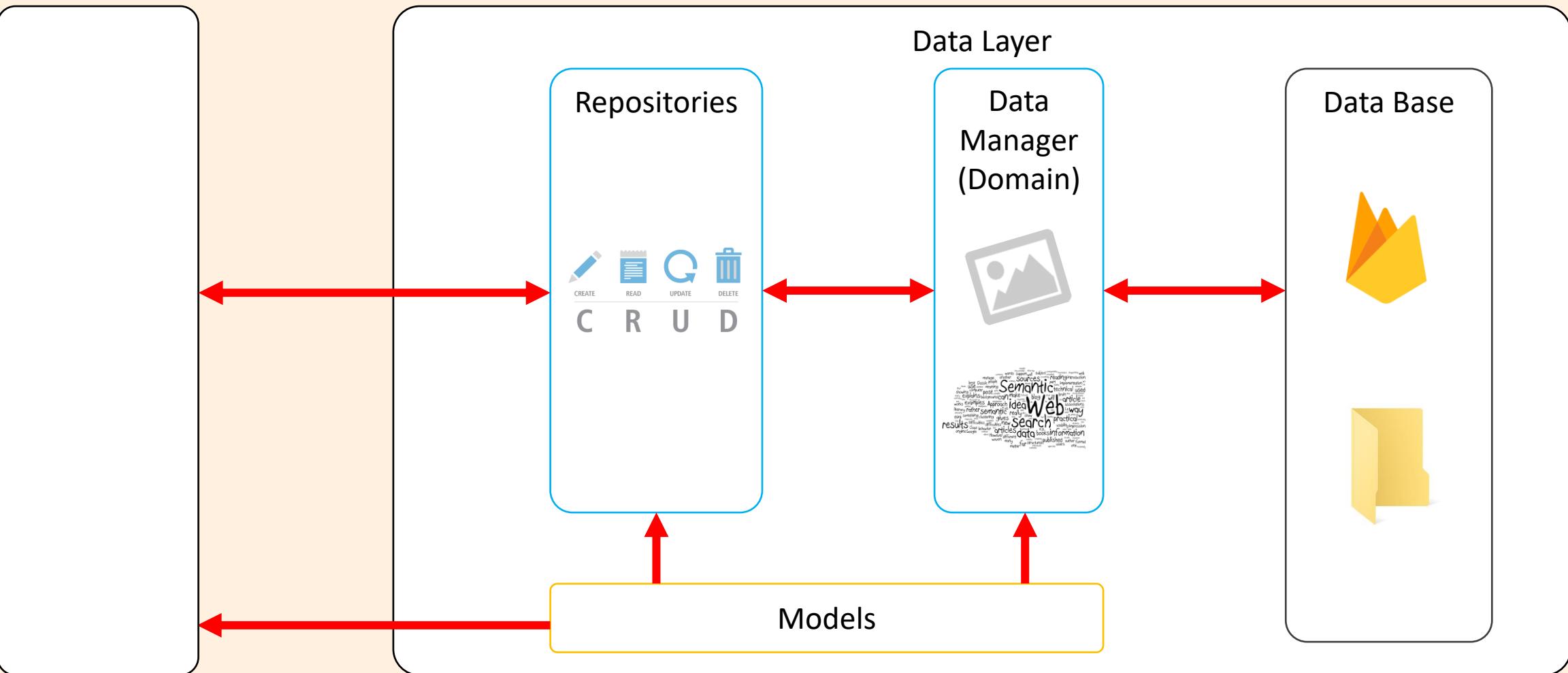
Internal BLOC



Widget Tree Form

$$\text{Widget (BLOC Builder)} + \text{Widget (BLOC Listener)} = \text{Widget (BLOC Consumer)}$$

Design Software Architecture (Data Layer)



Design Software Architecture (Data Layer - Repositories)

Create

Set Path to Write

Write Path

```
/// createCompanyData
/// [Require: company Object, uid]
/// [Return: bool - successful]
Future<bool> createCompanyData(
    @required Company company, @required String uid) async {
    _textManager.setWriteRef(
        collectionID: F.collectionNameList[1], documentID: uid);
    return await _textManager.setData(mapData: company.getMapAll());
}
```

Read

Set Path to Read

Query Data

```
/// readSelfNeeds
/// [Require: Nothing]
/// [Return: self Needs object]
Future<QuerySnapshot> readNeedsSelfData({@required String uid}) {
    _textManager.setReadRefwCond(
        collectionID: F.collectionNameList[14],
        mode: 0,
        fieldList: [F.CREATEDBY],
        value: uid);
    return _textManager.readDocDataQuery();
}
```

Delete

*Can be refactor

Update

Set Path to Write

Write Path

```
/// updateDonateItems
/// [Require: donateitem object]
/// [Return: bool value - success?]
Future<bool> updateDonateItemData(
    @required DonateItem donateItem, @required String uid) async {
    _textManager.setWriteRef(
        collectionID: F.collectionNameList[6], documentID: uid);
    return await _textManager.setData(mapData: donateItem.getMapAll());
}
```

```
/// deleteNeedsList
/// [Require: needs object]
/// [Return: bool value - success?]
Future<bool> deleteNeedsData({@required String uid}) {
    _textManager.setWriteRef(
        collectionID: F.collectionNameList[14], documentID: uid);
    return _textManager.deleteDocData();
}
```

Set Path to Delete

Delete Data

Design Software Architecture (Data Layer – Data Manager)

Firebase Text handler

```
/// Set Read documents references with condition
/// Mode : [0] = Matching Exact Same Characters
///          [1] = Not Equal to this characters
///          [2] = Match Two Conditions
///          [3] = Equal First, Not Equal Second
///          [4] = Equal First, More Than Second
///          [5] = Equal First, More Than Second ,Not Contain In Third
void setReadRefwCond(
    @required String collectionID,
    @required int mode,
    @required List<String> fieldList,
    @required dynamic value) {
    if (D.DEBUG)
        print(
            '[STORE-REF-READ-COND] Set Firestore READ references with con
if (mode == 0) {
    _queryReference = _firebaseFirestore
        .collection(collectionID)
        .where(fieldList[0], isEqualTo: value);
    if (D.DEBUG) {
        print('[STORE-REF-READ-COND] Set Read Data References ');
        print('Ref: $_queryReference');
    }
} else if (mode == 1) {
```

Different Mode
to Query Data

Firebase Image handler

```
/// Upload Image to Firestore in byte
Future<bool> uploadAndroid({@required PickedFile selectedImage}) async {
    try {
        _uploadTask = _imageReference.putFile(File(selectedImage.path));
    }

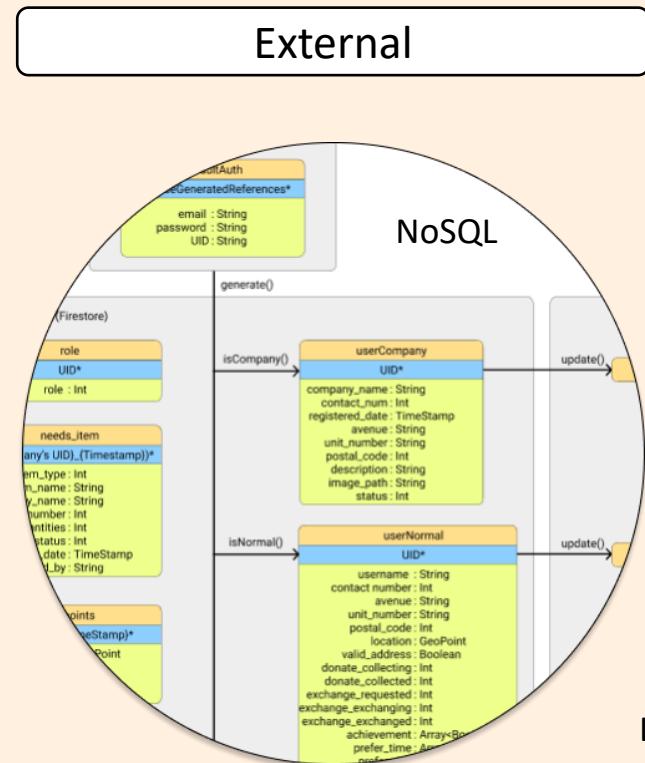
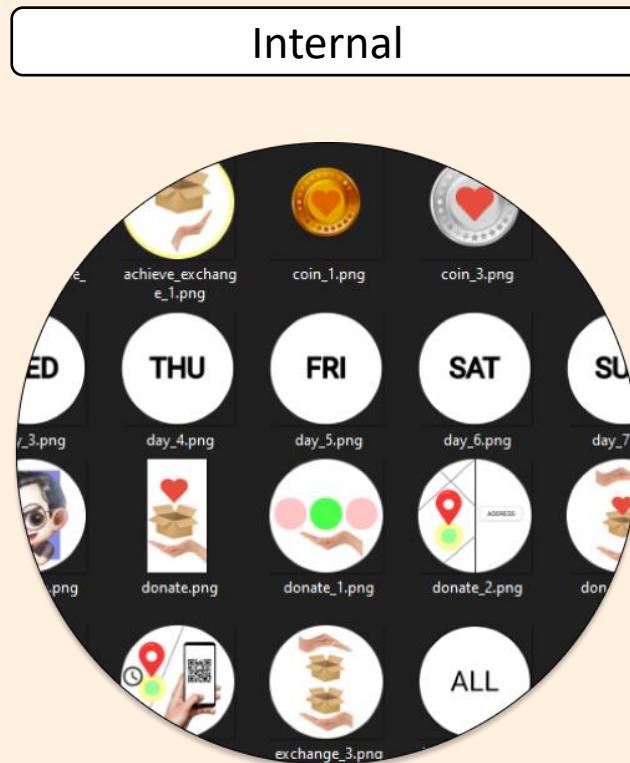
    TaskSnapshot _taskSnapshot = await _uploadTask.whenComplete(() {
        if (D.DEBUG) {
            print('[Storage] Image Uploaded Success');
        }
    });

    imageURL = await _taskSnapshot.ref.getDownloadURL();

    if (D.DEBUG) {
        print('Image Link: $_imageURL');
    }
    return true;
} catch (e) {
    if (D.DEBUG) {
        print('[Storage] $e');
    }
    return false;
}
```

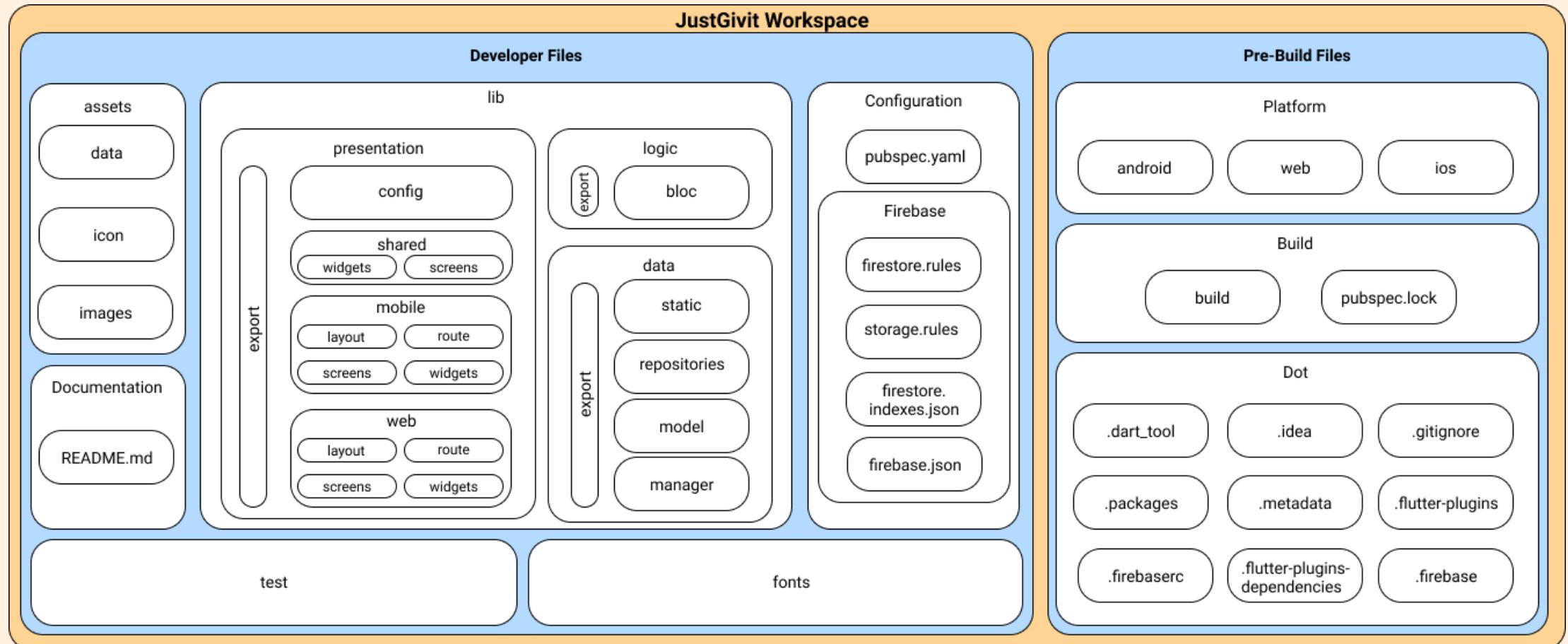
Responsible to
upload an Image
from
Android platform

Design Software Architecture (Data Layer – Data Base)

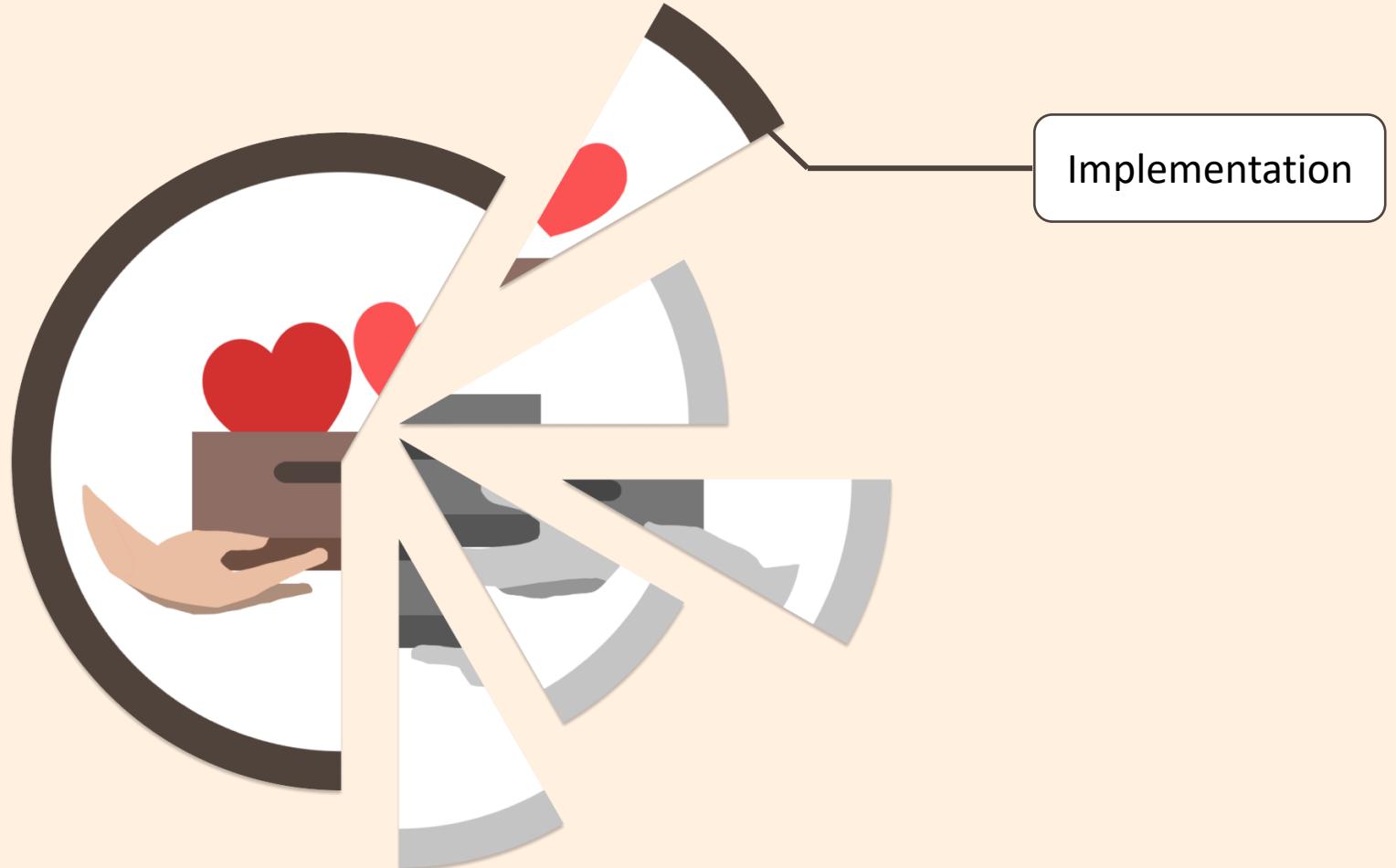


- Ideally**
- Fast Query Speed
 - Shallowed Collections
 - Little Dependency
 - Cons
 - Propagation data during Update
- Collection → Document(s) → Key-Value Pair
-
- A hierarchical diagram illustrating the ideal data structure:
- Collection:** Represented by a grey circle.
 - Document(s):** Represented by a yellow circle.
 - Key-Value Pair:** Represented by three blue circles connected to the yellow circle.

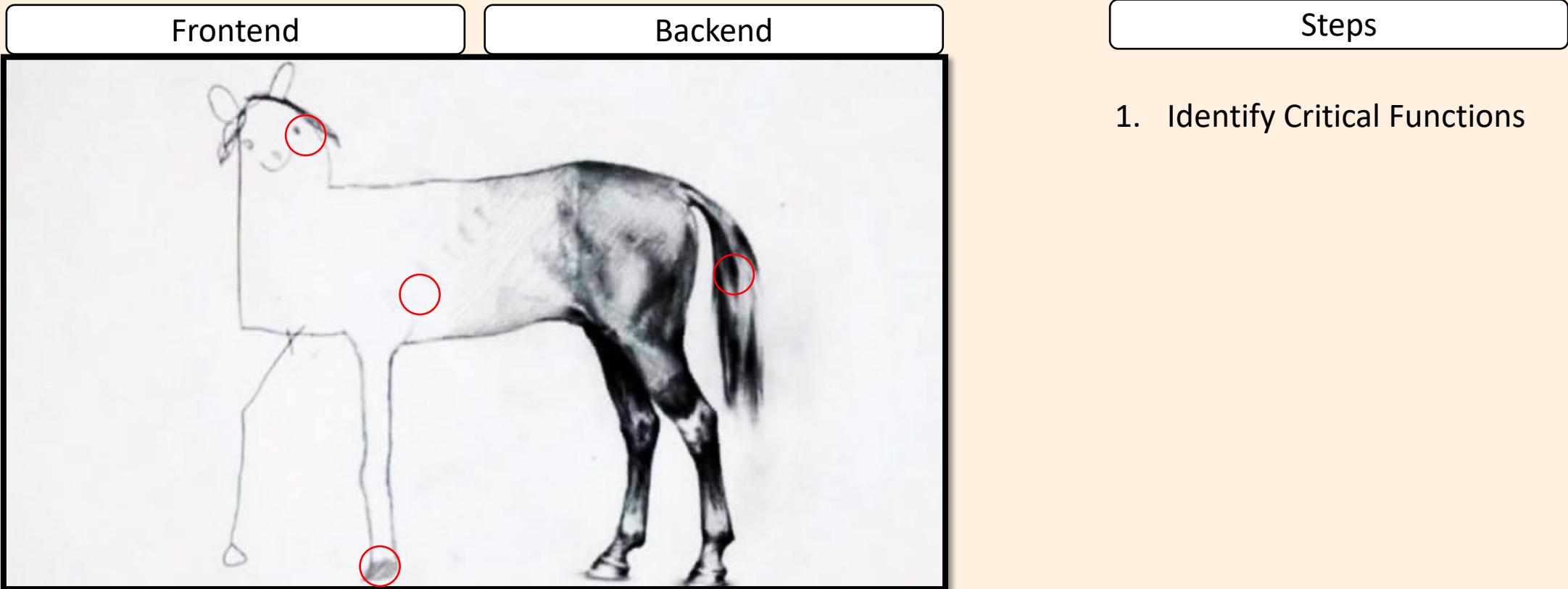
Design Organisation



Content



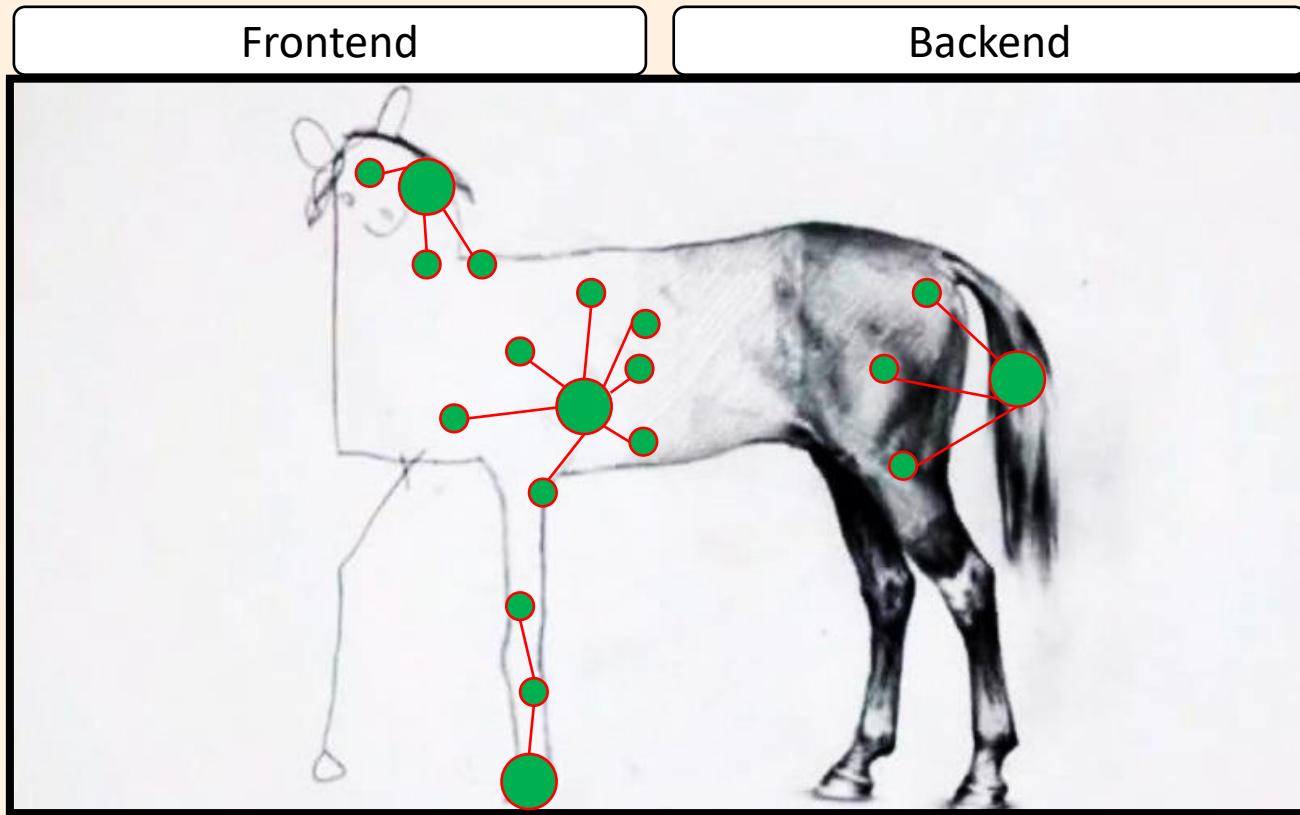
Implementation (Bottom-Up Approach)



Implementation

Frontend	Backend	Steps
		<ol style="list-style-type: none">1. Identify Critical Functions2. Implement Modular

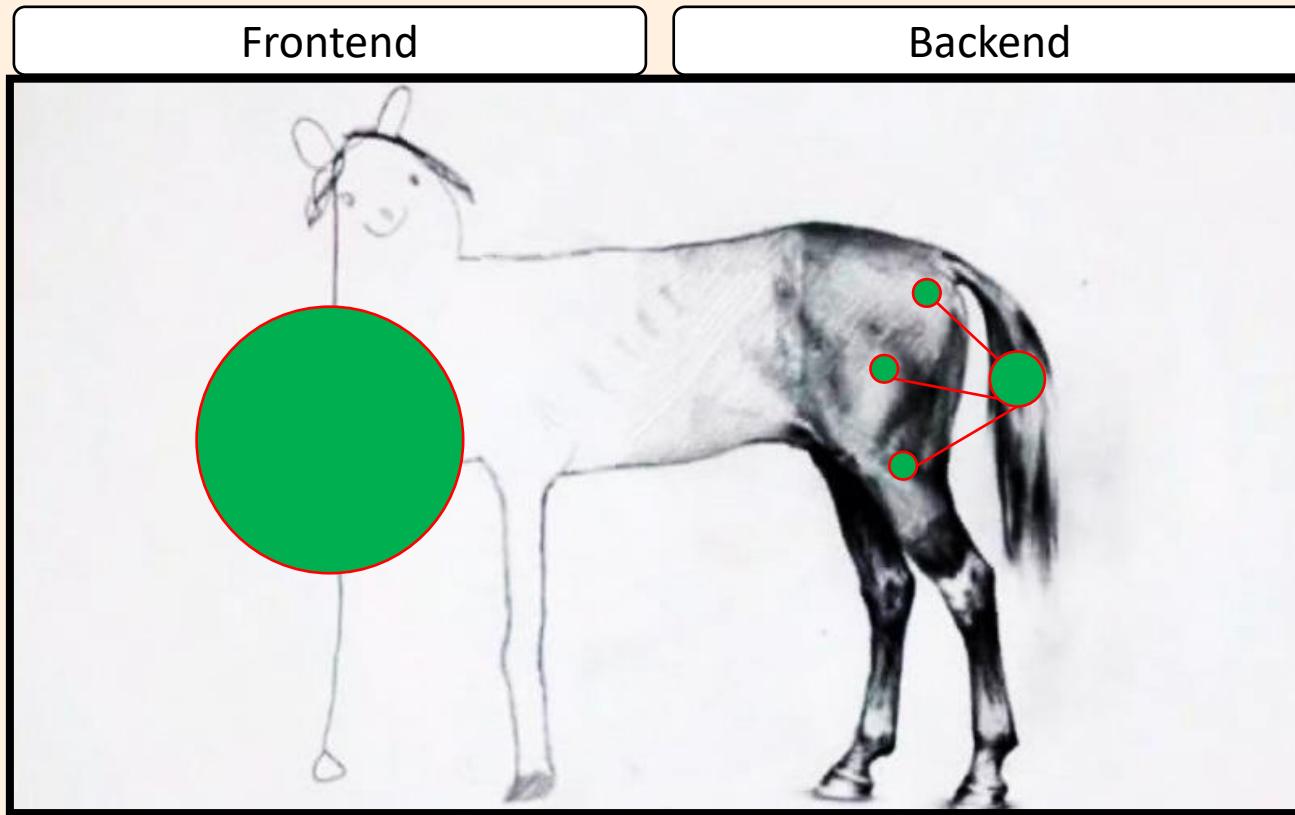
Implementation



Steps

1. Identify Critical Functions
2. Implement Modular
3. Expand Associate Functions

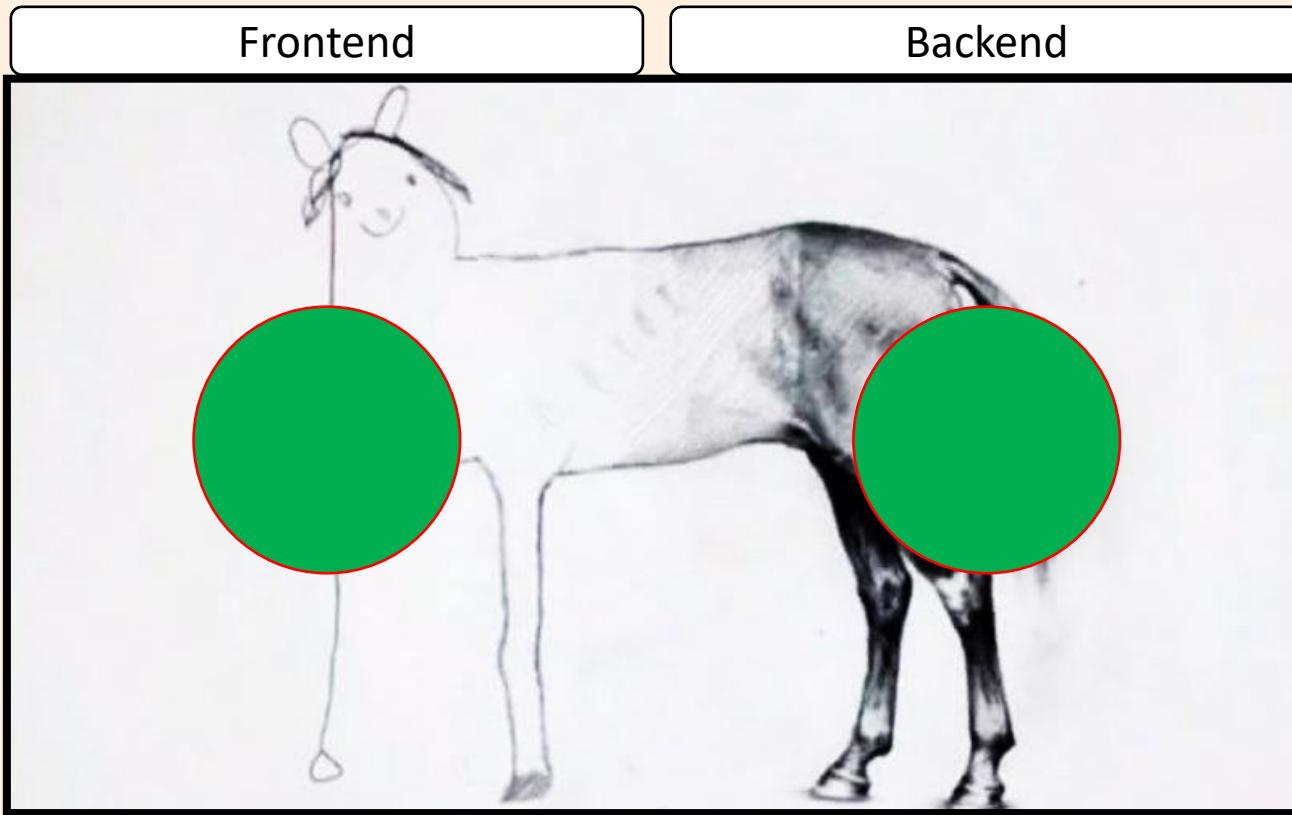
Implementation



Steps

1. Identify Critical Functions
2. Implement Modular
3. Expand Associate Functions
4. Frontend Implementation

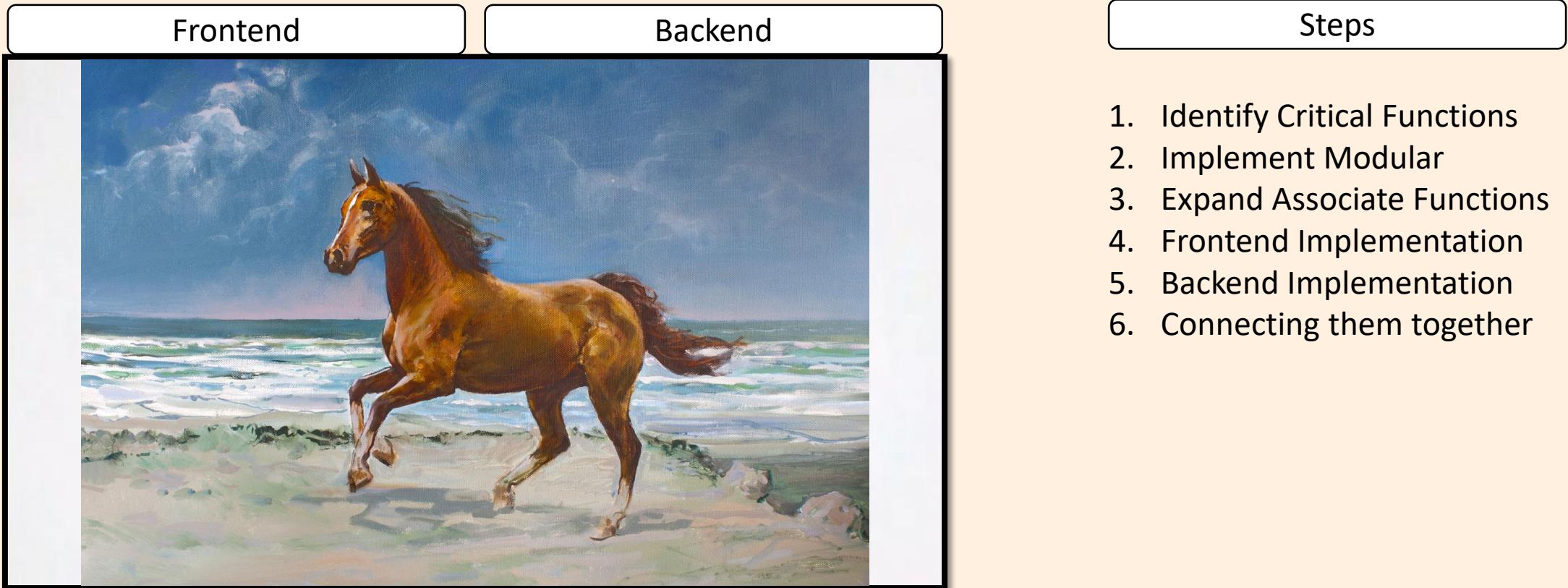
Implementation



Steps

1. Identify Critical Functions
2. Implement Modular
3. Expand Associate Functions
4. Frontend Implementation
5. Backend Implementation

Implementation



Mobile

Frontend (Sample)

Web

S/N	ITEM TYPE	ITEM NAME	QUANTITIES
1	PAPER	NEWSPAPER	16
2	CLOTH	CLOTHES	17
3	PAPER	NEWSPAPER	5
4	OTHER	WHITEBOARD	1
5	CLOTH	SOCKS	2
6	ELECTRONIC	SPEAKER	1

S/N	NAME	MEETING LOCATION	DATE & TIME	REMARK	RATE
1	SAM	JOHOR BAHRU	2021-04-20	RECEIVED IN GOOD CONDITION	★★★★★
2	SAM	SINGAPORE	2021-04-20	EXCELLENT	★★★★★
3	SAM	SINGAPORE	2021-04-20	RECEIVED IN GOOD CONDITION	★★★★★

REQUEST	EXCHANGING	EXCHANGED
1 HUH	SOUND MIXER	2021-04-11
2 ITEM2	HANDBAG	2021-04-11
3 NEVER GIVE UP!	BLUE BAG	2021-04-11

ABILITIES BEYOND

PLEASE ENTER CONTACT ...

PLEASE ENTER YOUR ...

PLEASE RE-ENTER YOUR ...

I HAVE ACKNOWLEDGE THE TERMS & CONDITIONS

REGISTER

DONATION AND EXCHANGE MAP

Scan or Key Other QR Code!

EA2NJA

PLEASE KEY IN QR CODE

SUBMIT

9 POINTS AWARDED

SPIN THE WHEEL!

BEST FREE!

200 GIVIT POINTS AWARDED

USE 3 POINTS

SCAN OR KEY OTHER QR CODE!

EA2NJA

PLEASE KEY IN QR CODE

SUBMIT

SAMSAM 2021-04-20 22:01:44 HRS

WHAT ARE U DOING

SAMMY 2021-04-20 22:02:10 HRS

6666

SAMSAM 2021-04-20 22:02:31 HRS

WHAT ARE U DOING

MESSAGE HERE

Backend (Sample)

Firebase's FireStore

+ Start collection

- app_feedback
- chat
- chat_list
- collector_feedback
- donate_item
- exchange_feedback** >
- exchange_item
- exchange_qa
- needs_item
- pin_points
- role
- user_collector
- user_company
- user_normal

+ Add document

1618846657398242_DrYsKZvOU1MKgXyVTu	1618846760147606_DrYsKZvOU1MKgXyVTu	1619870913780913_5aXZIjtRNigW45wnYg	1619879910070706_5aXZIjtRNigW45wnYg
1619928487165174_DrYsKZvOU1MKgXyVTu	1619928813623380_oyKat6U9UScrGnah0o		

+ Start collection

+ Add field

exchange_item_id: "296d181bae17dce5958d024c6840d4255fe9ccfe"
exchanger_id: "DrYsKZvOU1MKgXyVTuZ95Gog1c33"
image_path: "https://firebasestorage.googleapis.com/v0/b/justgivit-7ec8a.appspot.com/o/usernormal%2F1619879905518824%2Fexchange&alt=media&token=7698218d-9702-48ff-b9bd-319ec309aa22"
published_date: May 1, 2021 at 10:38:28 PM UTC+8
rating: 4
remark: ""
status: 0

+ Start collection

- app_feedback
- chat
- chat_list
- collector_feedback
- donate_item
- exchange_feedback
- exchange_item
- exchange_qa
- needs_item
- pin_points
- role
- user_collector
- user_company
- user_normal** >

+ Add document

HiH4ele7KJXVQwl0scvbyJgry82	SABv3AtP9wNrH3nFDjwKoBuG5X2	UiHSLqLOYDUis6WamCDNUy6pM2	VikEwol1SacR0d6NGWE2dM17pA3	cRakfLsRzueRFCJA88Ik8rwd3od2	fA7Qc0a0ERVUY3diBTNh42XPFXN2	hwSHx0Zar4cjSVfcDKefqB1Ewgf1	kQYUE3dWuqaBK3oeHhdQk8vNsF22	lckZnDkaac05CJDyWohceZZ0F3	n0Kz3MRy9id5yTlcVjXAc3ssLE3	oyKat6U9UScrGnah0aedwwbZvw2	r6WYogZWUUe7TT9y6EN5VawXAW23	vJqne8gYhfuyNmwJB62Yhf9UI22	wPsIUm0GGPUw0q1YqmQSVOYfew03

+ Start collection

+ Add field

achievement:
 true
 false
 false
avenue: "Yishun Street 71"
contact_num: null
donate_collected: 1
donate_collecting: 0
exchange_exchanged: 0
exchange_exchanging: 0
exchange_requested: 1
image_path: "https://firebasestorage.googleapis.com/v0/b/justgivit-7ec8a.appspot.com/o/usernormal%2FwPsIUm0GGPUw0q1YqmQSVOYfew03"

Firebase's FireStorage

gs://justgivit-7ec8a.appspot.com > usernormal > wPsIUm0GGPU... > profile

Upload file

profile.png



Name profile.png
Size 87.42 KB
Type image/png
Last modified Mar 22, 2021

profile

profile.png

Name profile.png
Size 89,522 bytes
Type image/png
Created Mar 22, 2021, 11:02:32 PM
Updated

gs://justgivit-7ec8a.appspot.com > usercompany

Upload file

Pna4uyvxPXXuZm5XNJWmzTT4wzr1/

WzEbNJbjSNNiPw3eXjghsWZZ9JF3/

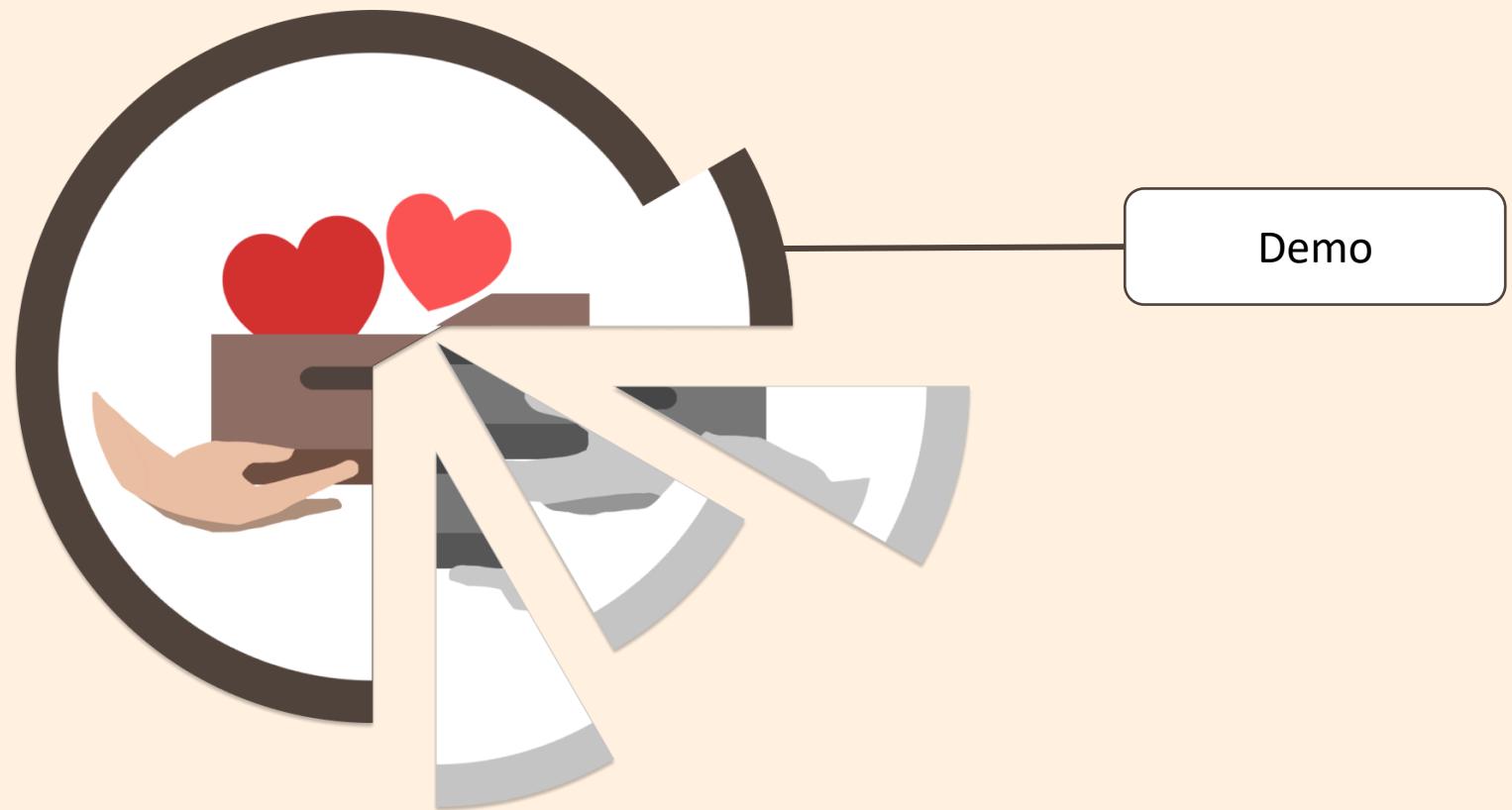
hBWDjT8hSfe4M68yu9TGrc6ytVs2/

q1zu3dbCzIZuqKDWFwOs67IQ7Vs2/

rbfBny44AjfPOJRU635e5DXOpby1/

w6WjIBKu7IMJ9Vde4NFyx1aEt53/

Content



Demo

Public & Company User

The mobile application interface for Public & Company User features a central circular graphic divided into two halves: one side shows a red heart and the other shows hands holding open cardboard boxes. The interface is organized into three main sections:

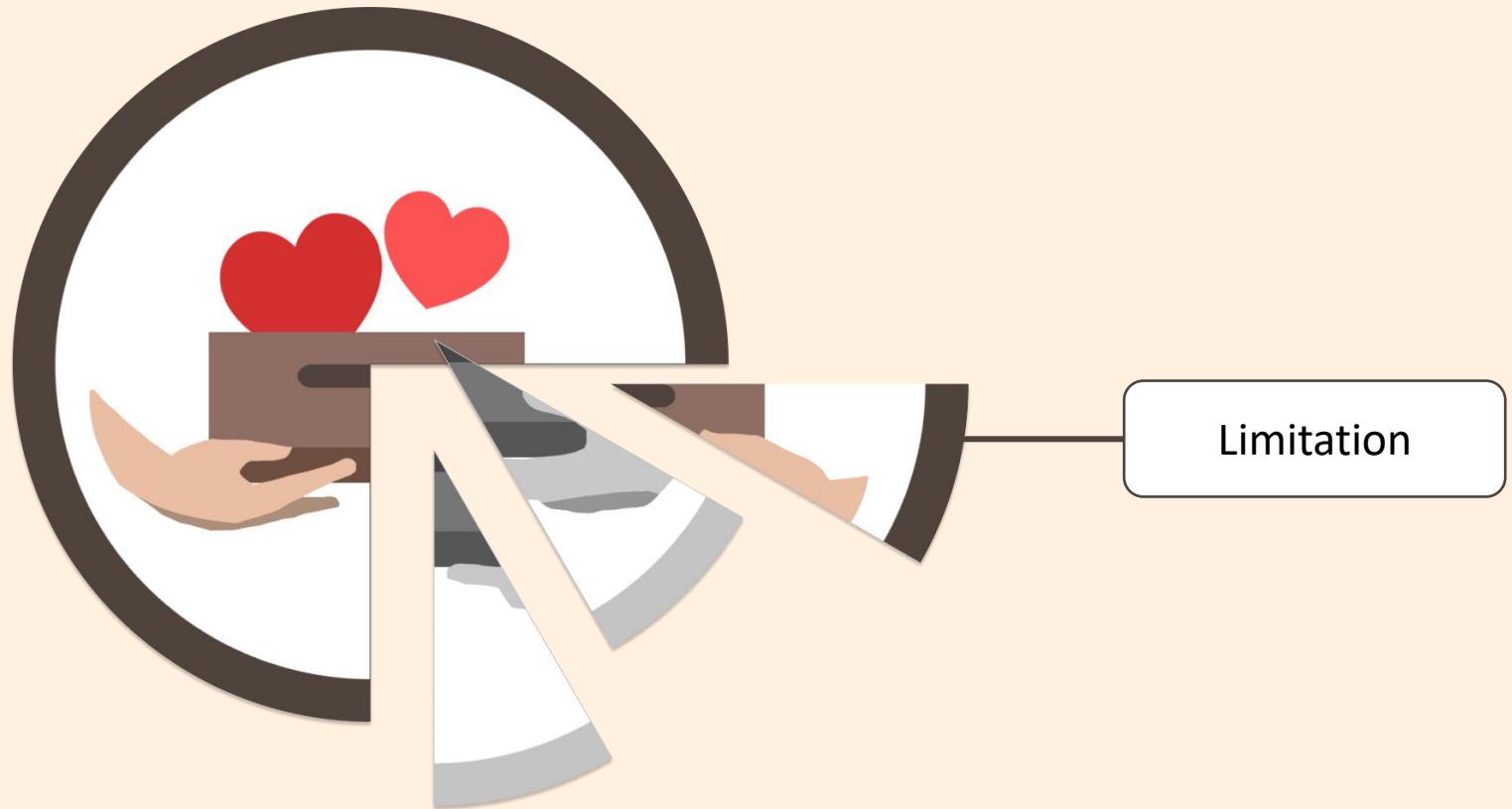
- STEP 1:** SELECT AND DONATE ITEM(S)! (Icon: hands holding green and pink circles)
- STEP 2:** PROVIDE AN LOCATION AND DONE! (Icon: map pin with address)
- STEP 3:** COLLECTOR WILL COLLECT! (Icon: hands holding a box with a heart)

At the top right, there are "LOGIN" and "SIGN UP" buttons, and a note about the version: "Version: (beta-v0.1)".

Normal User

The mobile application interface for Normal User is simpler, featuring a large circular graphic with a heart and boxes on the left, and hands holding boxes on the right. Below the graphic, the words "DONATE" and "EXCHANGE" are displayed. At the bottom, there are "LOGIN" and "JOIN US" buttons, along with a navigation bar with icons for a heart, trophy, home, people, and information.

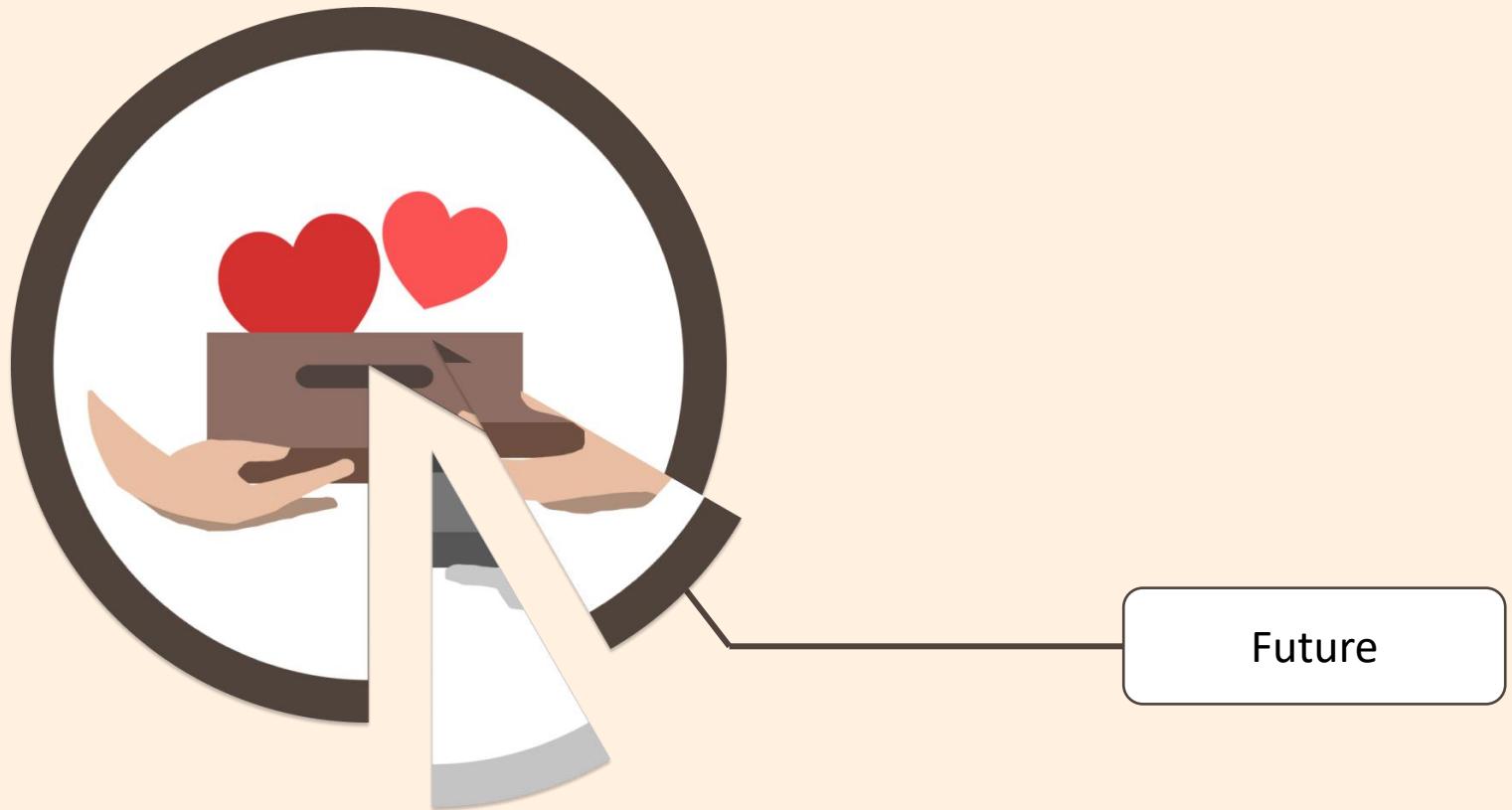
Content



Limitation

- **Cold start** (rendering for the 1st time is slow, but subsequence is decent)
- **Handling beta software** (Flutter Web) (Scroll function not working well)
- **Firebase Limited CRUD operation** with FireStore and FireStorage (Spark plan)
- **Code efficiency, and optimization** beyond my knowledge at this point

Content



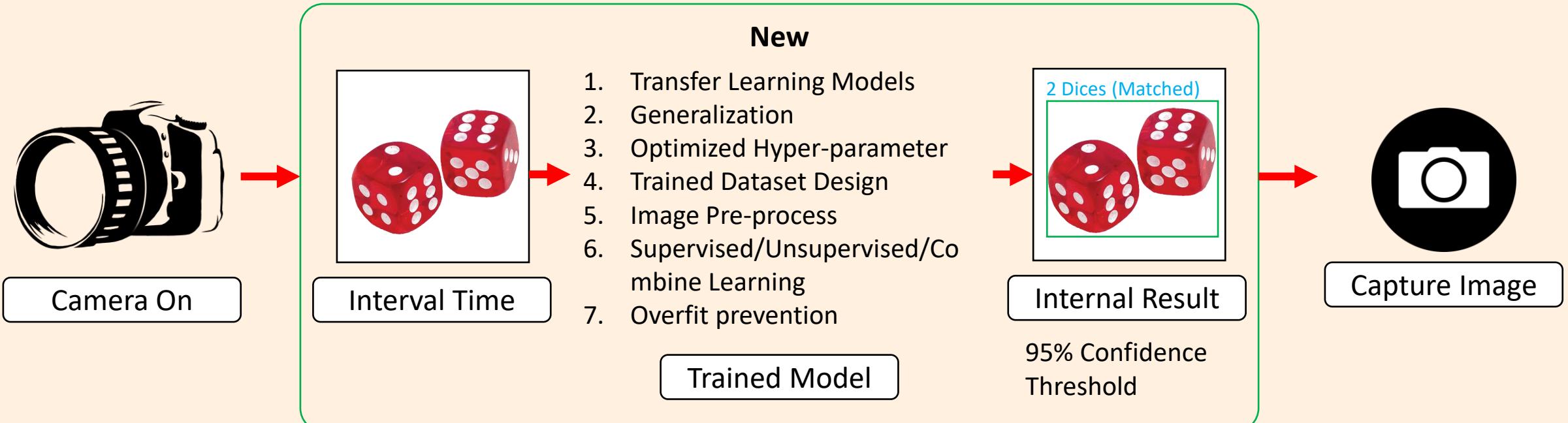
Future (Technical Topics)

Foundation

Future

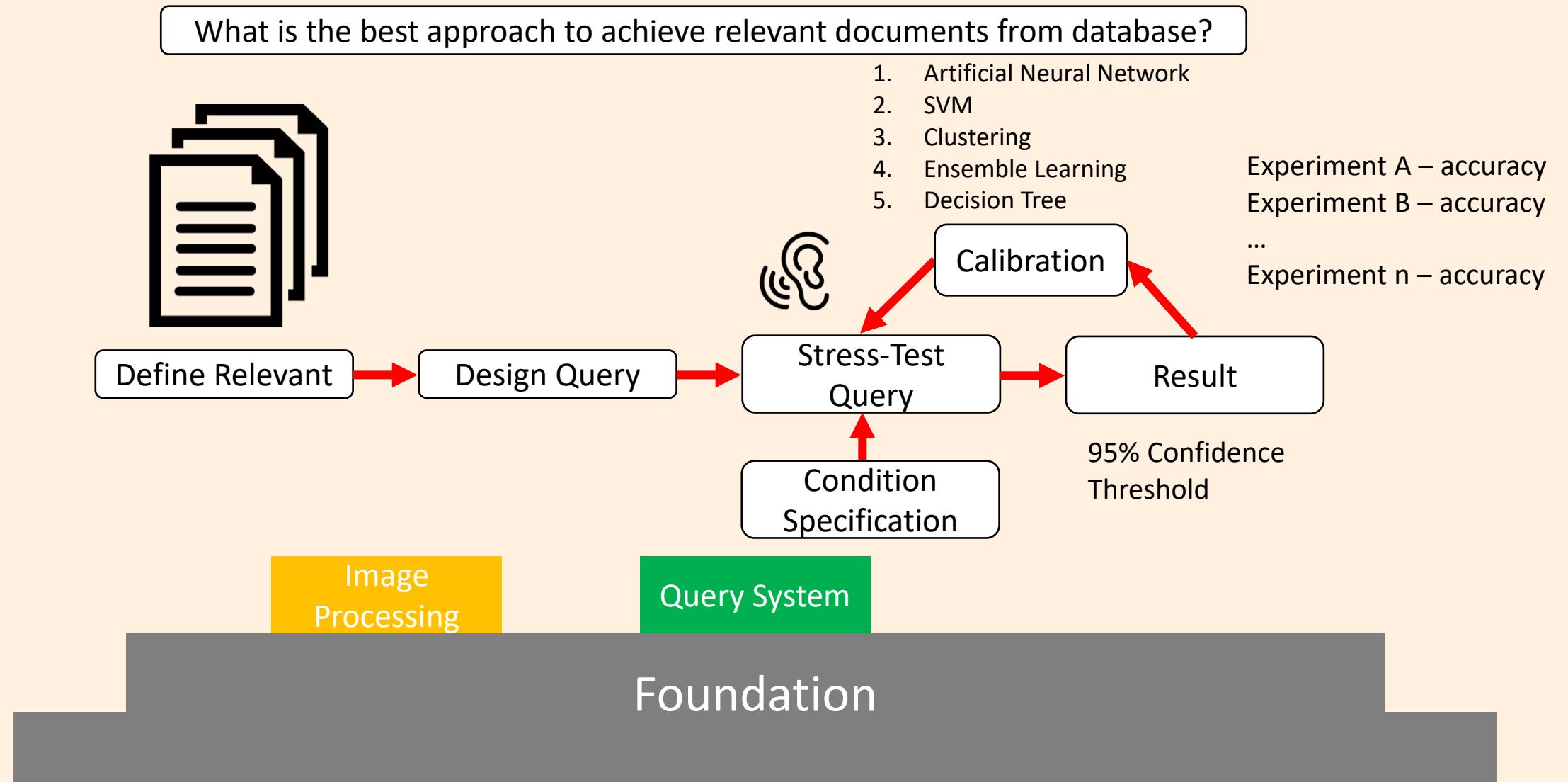
Experiment A – accuracy, loss, process-time
Experiment B – accuracy, loss, process-time
...
Experiment n – accuracy, loss, process-time

What is the best reliable object detection algorithm for this project?

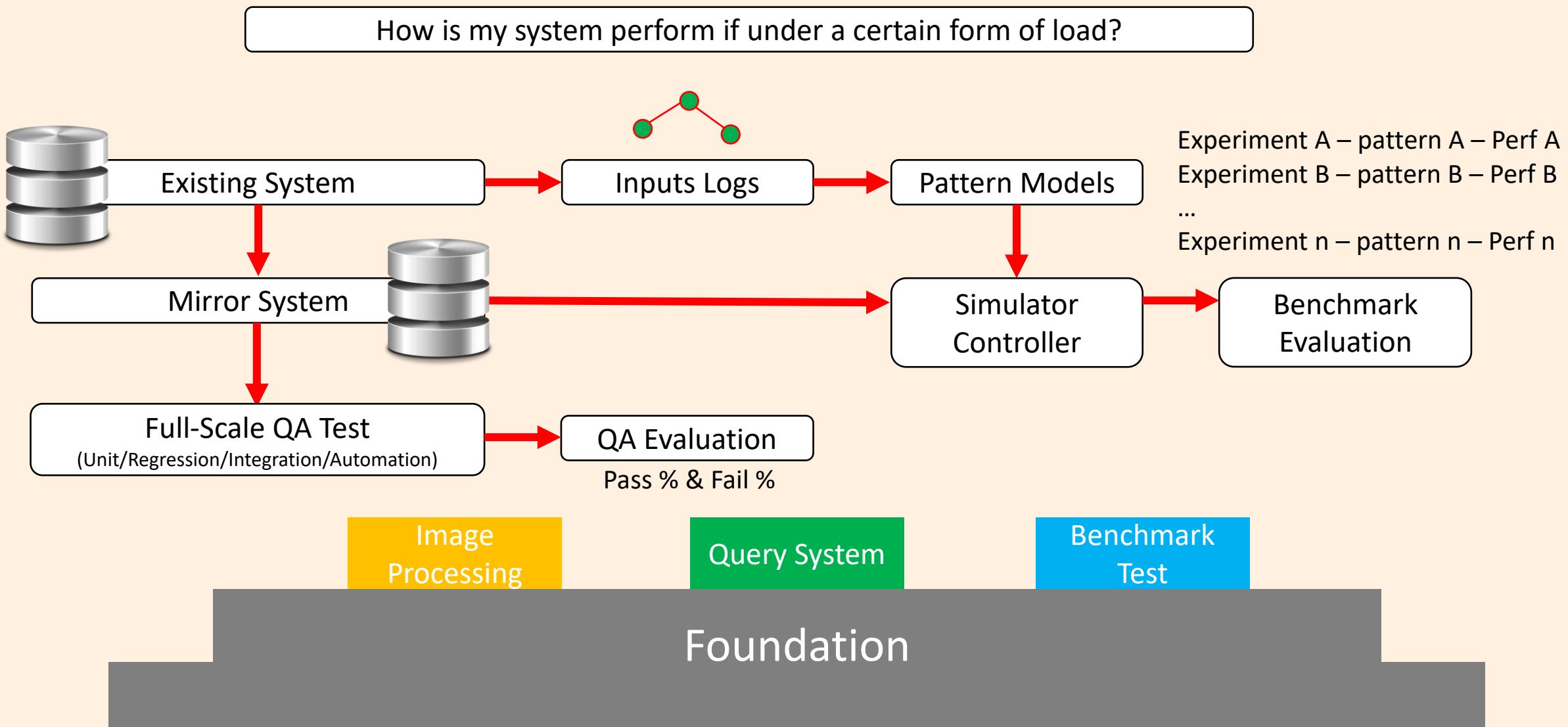


Foundation

Future



Future



Future

Non-Linear
Reward System

Personalization
Settings

Software Version
Supports

IOS Support

Notification
System

Cyber Security

Separate of
Concern

Enhance
Interactive UI

Integrity Checks

Image
Processing

Optimization

Query System

Benchmark
Test

Foundation

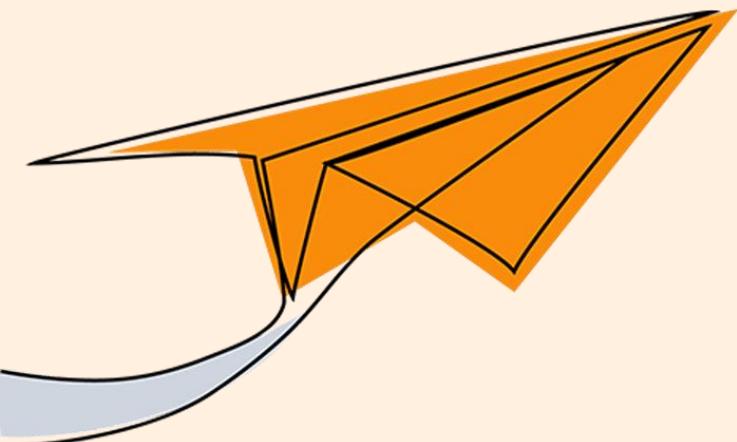
Content



Conclusion

Conclusion

This project has served a meaningful purpose, not just the ideas but the knowledge acquired from the full-stack development. Although the process may be tedious at times. More importantly, is the values and experience that gain, will enabled me to develop something much impactful and exciting in the future.





JustGivit

A digital platform for Giving

References

Demo

Public & Company User

The mobile application interface for Public & Company User features a central circular graphic divided into two halves: one side shows a red heart and the other shows hands holding open cardboard boxes. The interface is organized into three main sections:

- STEP 1:** SELECT AND DONATE ITEM(S)! (Icon: hands holding green and pink circles)
- STEP 2:** PROVIDE AN LOCATION AND DONE! (Icon: map pin with address)
- STEP 3:** COLLECTOR WILL COLLECT! (Icon: hands holding a box with a heart)

At the top right, there are "LOGIN" and "SIGN UP" buttons, and a note about the version: "Version: (beta-v0.1)". At the bottom, there are links for "CONTACT US", social media icons (Facebook, Instagram, Twitter, Android), and navigation tabs for "COMPANY", "ABOUT US", and "DEVELOPER".

Normal User

The mobile application interface for Normal User is simpler, featuring a large circular graphic with a heart and boxes on the left and hands holding boxes on the right. Below the graphic, the words "DONATE" and "EXCHANGE" are displayed. At the bottom, there are "LOGIN" and "JOIN US" buttons, along with a navigation bar with icons for a heart, trophy, home, people, and information.

Income Group Distribution 2010 - 2020, Average & Median Monthly Household Income 2010-2020

	Per Cent										
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Households with No Working Person	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<i>Solely Non-Working Persons Aged 65 Years & Over</i>	10.5	9.3	9.2	9.4	10.4	9.7	10.8	11.8	12.1	13.2	13.3
Below \$1,000	4.1	4.5	4.7	4.9	5.7	5.3	6.1	6.9	7.1	7.9	7.5
\$1,000-\$1,999	3.5	3.2	3.0	2.7	2.3	2.0	2.0	1.9	1.9	1.8	2.0
\$2,000-\$2,999	7.0	6.5	6.2	6.2	5.9	5.7	5.5	5.4	5.3	5.1	5.1
\$3,000-\$3,999	8.2	7.1	6.3	6.3	5.8	5.8	5.4	5.1	5.2	4.9	5.1
\$4,000-\$4,999	8.3	7.6	6.6	6.7	6.0	5.5	5.3	5.5	5.2	5.2	5.4
\$5,000-\$5,999	7.9	7.2	7.0	6.3	5.9	5.9	5.4	5.2	5.3	5.4	5.2
\$6,000-\$6,999	7.4	7.0	6.8	6.4	6.1	5.7	5.9	5.4	5.4	4.9	5.4
\$7,000-\$7,999	6.7	6.5	6.1	5.8	5.8	5.8	5.2	5.2	4.9	5.0	
\$8,000-\$8,999	5.7	6.0	5.8	5.6	5.4	5.3	5.1	5.2	4.6	4.6	4.8
\$9,000-\$9,999	5.1	5.4	5.4	5.1	5.1	5.3	4.9	5.0	4.7	4.6	4.6
\$10,000-\$10,999	4.2	4.7	4.7	4.6	4.7	4.8	4.6	4.6	4.4	4.1	4.4
\$11,000-\$11,999	3.8	4.1	4.1	4.4	4.7	4.3	4.6	4.3	4.3	4.2	4.0
\$12,000-\$12,999	3.0	3.3	3.8	3.7	3.6	3.8	3.8	3.6	3.8	3.8	3.6
\$13,000-\$13,999	2.6	2.7	3.3	3.4	3.3	3.6	3.5	3.2	3.2	3.4	3.2
\$14,000-\$14,999	2.1	2.4	2.6	2.8	3.0	3.0	3.0	3.0	3.2	3.0	3.0
\$15,000- \$17,499	1.8	2.1	2.2	2.6	2.6	2.7	2.6	2.7	2.6	2.8	2.6
\$17,500-\$19,999	3.5	4.2	4.6	4.7	4.9	5.2	5.5	5.6	5.8	5.4	5.6
\$20,000 & Over	2.2	2.8	3.1	3.3	3.5	3.8	4.0	4.1	4.2	4.1	4.0
Notes: A resident household refers to a household where the household reference person is a Singapore citizen or permanent resident. Household income from work includes employer CPF contributions.	6.6	8.0	9.2	9.9	11.0	12.1	12.4	13.3	13.5	14.4	13.9

Table 10A. Average and Median Monthly Household Income from Work Among Resident Employed Households, 2010 – 2020

	Dollar	
Year	Average	Median
2010	8,726	6,342
2011	9,618	7,037
2012	10,348	7,566
2013	10,469	7,872
2014	11,143	8,292
2015	11,510	8,666
2016	11,589	8,846
2017	12,027	9,023
2018	12,137	9,293
2019	12,386	9,425
2020	12,235	9,189

Notes:
A resident employed household refers to a household where the household reference person is a Singapore citizen or permanent resident, and with at least one working person.

Household Properties Distribution

2010 & 2020

Table 7. Resident Households by Household Characteristics and Deciles¹, 2010, 2015, 2020

Household Characteristics	Resident Households	Households With No Working Person	Resident Employed Households										
			Total	1 st - 10 th	11 th - 20 th	21 st - 30 th	31 st - 40 th	41 st - 50 th	51 st - 60 th	61 st - 70 th	71 st - 80 th	81 st - 90 th	91 st - 100 th
			2010										
Average Household Size (Persons)	3.50	2.03	3.67	3.91	3.98	4.01	4.04	3.96	3.82	3.67	3.44	3.16	2.69
Average Number of Working Persons (Persons)	1.67	-	1.86	1.28	1.61	1.81	1.98	2.07	2.09	2.11	2.03	1.93	1.71
With At Least 1 Maid (%)	13.7	9.2	14.3	8.0	10.5	12.3	13.8	14.8	15.0	15.7	16.6	17.4	18.6
With At Least 1 Car (%)	40.1	15.3	43.0	15.9	23.2	29.8	36.2	41.9	47.3	51.7	56.2	61.3	66.2
Type of Dwelling (%):													
Total ²	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total HDB ³	82.4	83.2	82.3	94.8	94.9	93.5	92.2	89.9	87.3	82.9	76.8	66.7	43.7
HDB 1- & 2-Room Flats ⁴	4.6	16.3	3.2	13.8	7.8	3.8	2.4	1.5	0.9	0.8	0.4	0.3	0.2
HDB 3-Room Flats	20.0	30.6	18.8	28.7	26.6	24.0	21.5	19.2	17.6	15.7	14.3	12.0	8.7
HDB 4-Room Flats	31.9	23.2	32.9	37.1	41.2	41.3	40.1	38.6	35.3	32.2	27.5	22.4	13.4
HDB 5-Room and Executive Flats	25.6	12.9	27.1	15.2	19.1	24.2	28.1	30.3	33.3	33.9	34.2	31.6	20.9
Condominiums & Other Apartments	11.5	9.5	11.8	2.7	2.7	3.8	4.6	6.1	7.9	11.5	15.6	23.0	39.9
Landed Properties	5.7	6.8	5.5	2.0	2.0	2.3	2.8	3.6	4.3	5.3	7.2	9.9	16.0
Age of Household Reference Persons (Years) (%):													
Total ⁵	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
25 – 34	10.8	2.9	11.7	3.8	4.9	6.3	8.4	9.8	12.0	13.9	17.9	21.5	18.7
35 – 44	24.2	8.0	26.1	18.5	21.2	22.9	23.9	25.1	26.0	27.6	28.6	30.9	35.9
45 – 54	28.9	14.1	30.6	36.9	37.3	36.4	34.1	31.9	29.1	26.7	24.2	23.5	26.1
55 – 64	21.5	21.5	21.5	22.4	22.6	22.8	23.9	23.6	23.9	23.2	20.7	17.5	14.8
65 & over	14.0	52.0	9.6	17.9	13.6	11.1	9.5	9.2	8.5	8.0	7.8	6.0	4.3

Notes: It is notable, for example, that some resident employed households in the lowest 10% owned a car (13.9%), employed a maid (13.5%), lived in private property (7.6%) or were with household reference persons aged 65 years and over (30.0%) in 2020. It is also important to recognise that not all households are consistently in the same decile group from one year to the next. For example, a household may move down from a higher decile in a particular year due to the temporary unemployment of a household member, before moving up the deciles when the member resumes work in the subsequent year. In comparing the performance of any particular decile group over time, it is therefore relevant to note that the comparison may not pertain to the same group of households.

¹Based on ranking of all resident employed households by their monthly household income from work per household member (including employer CPF contributions).

²'Total' includes other types of dwelling not shown, e.g. non-HDB shophouses etc.

³Data for years prior to 2018 includes non-privatised Housing and Urban Development Corporation (HUDC) flats.

⁴Includes HDB studio apartments.

⁵'Total' includes household reference persons aged below 25 years old.

Table 7. Resident Households by Household Characteristics and Deciles¹, 2010, 2015, 2020 (continued)

Household Characteristics	Resident Households	Households With No Working Person	Resident Employed Households										
			Total	1 st - 10 th	11 th - 20 th	21 st - 30 th	31 st - 40 th	41 st - 50 th	51 st - 60 th	61 st - 70 th	71 st - 80 th	81 st - 90 th	91 st - 100 th
			2020										
Average Household Size (Persons)	3.22	1.88	3.42	3.54	3.76	3.62	3.77	3.75	3.59	3.53	3.27	2.99	2.43
Average Number of Working Persons (Persons)	1.63	-	1.89	1.28	1.68	1.85	2.03	2.13	2.13	2.14	2.03	1.91	1.66
With At Least 1 Maid (%)	15.8	14.1	16.1	13.5	14.6	14.6	15.5	16.1	16.5	17.4	17.9	17.9	16.6
With At Least 1 Car (%)	32.8	13.5	35.7	13.9	18.6	21.8	28.2	33.7	38.3	45.0	49.0	53.0	55.8
Type of Dwelling (%):													
Total ²	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total HDB ³	78.7	83.4	78.0	92.2	92.4	91.4	90.0	86.3	82.7	77.2	69.8	58.5	38.9
HDB 1- & 2-Room Flats ⁴	6.5	18.2	4.7	16.8	9.3	7.8	4.2	2.9	2.1	1.2	1.2	0.8	0.4
HDB 3-Room Flats	17.7	26.4	16.3	26.1	24.6	22.8	19.1	16.0	15.0	12.1	10.9	9.5	7.2
HDB 4-Room Flats	31.6	23.7	32.9	33.8	39.4	39.0	40.2	38.3	36.0	33.5	28.3	24.2	15.9
HDB 5-Room and Executive Flats	22.9	15.1	24.1	15.5	19.1	21.8	26.5	29.1	29.7	30.4	29.4	24.1	15.5
Condominiums & Other Apartments	16.0	10.9	16.8	4.9	5.1	5.8	6.9	9.9	12.9	17.5	23.9	32.5	49.0
Landed Properties	5.0	5.4	4.9	2.7	2.4	2.5	2.8	3.5	4.0	5.0	6.0	8.7	11.7
Age of Household Reference Persons (Years) (%):													
Total ⁵	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
25 – 34	9.0	1.8	10.1	5.0	6.7	6.6	7.7	8.6	10.4	11.2	14.3	17.5	13.5
35 – 44	20.3	4.4	22.7	12.8	15.7	16.5	19.6	21.7	23.5	26.2	26.9	30.4	33.6
45 – 54	24.4	9.7	26.6	23.1	25.4	25.6	26.7	26.6	27.3	26.3	27.3	26.5	31.6
55 – 64	24.3	18.5	25.2	28.4	29.2	30.1	29.4	29.1	25.7	24.4	21.8	17.9	16.5
65 & over	21.5	64.8	14.9	30.0	22.4	20.7	16.1	13.6	12.8	11.6	9.5	7.5	4.8

Notes: It is notable, for example, that some resident employed households in the lowest 10% owned a car (13.9%), employed a maid (13.5%), lived in private property (7.6%) or were with household reference persons aged 65 years and over (30.0%) in 2020. It is also important to recognise that not all households are consistently in the same decile group from one year to the next. For example, a household may move down from a higher decile in a particular year due to the temporary unemployment of a household member, before moving up the deciles when the member resumes work in the subsequent year. In comparing the performance of any particular decile group over time, it is therefore relevant to note that the comparison may not pertain to the same group of households.

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⁴Includes HDB studio apartments.

⁵'Total' includes household reference persons aged below 25 years old.