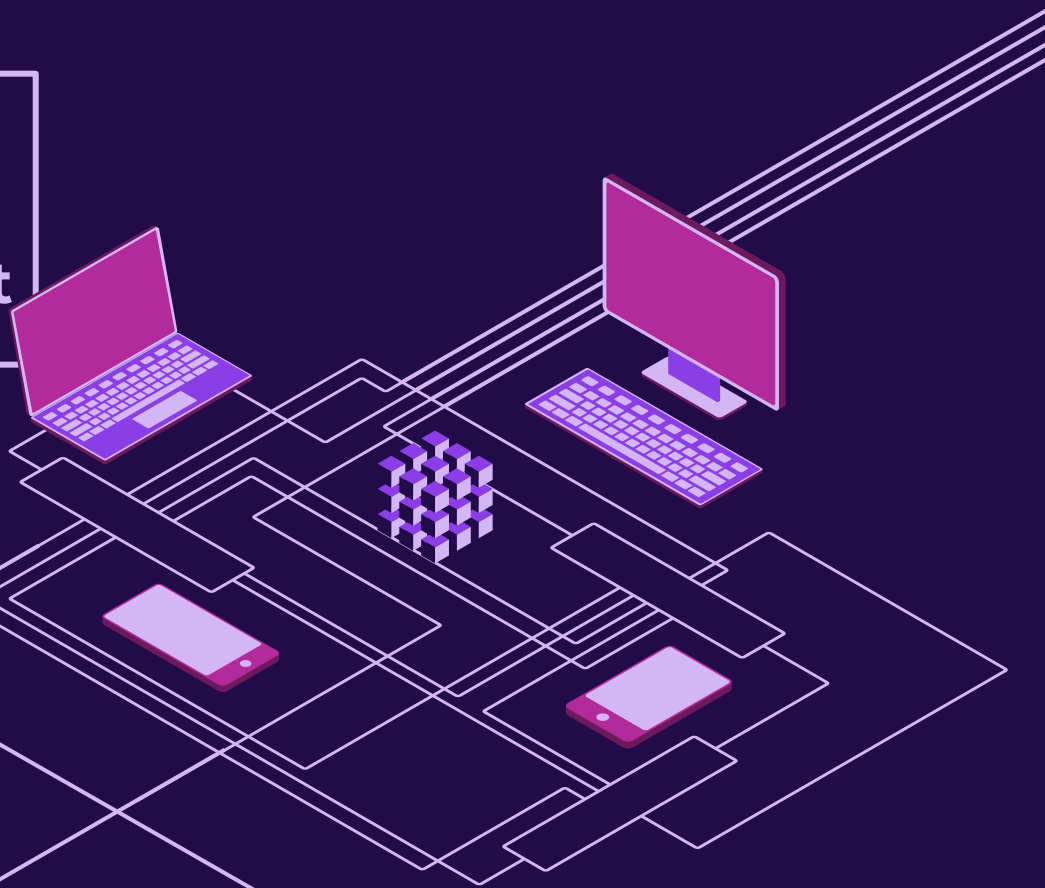
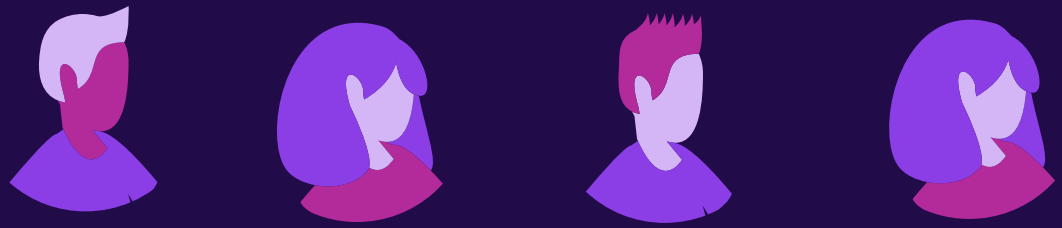
NDIS

positive behaviour support

Development Team: ND-BoxJelly



Our Team

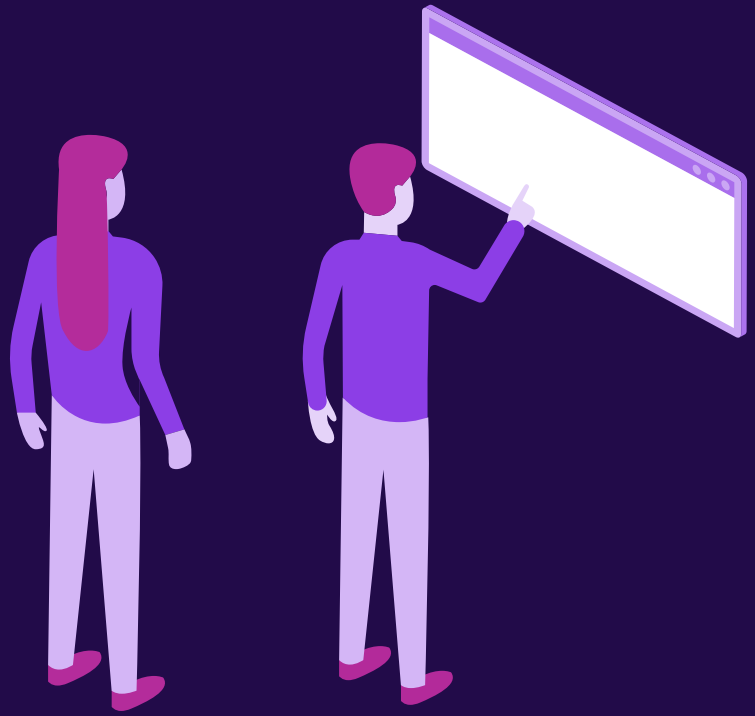


Yuling Zheng
Shihao Shen
Hanyu Zhu
Yang Song

Project Supervisor

Samodha Pallewatta

Background



Practitioner

This project is developed to enhance practitioners' ability to provide quality Behaviour Support Plans (BSPs) that are consistent with legislation, policy, and good clinical practice.

What Clients Want

01

Practitioners upload PDFs to the Canvas environment

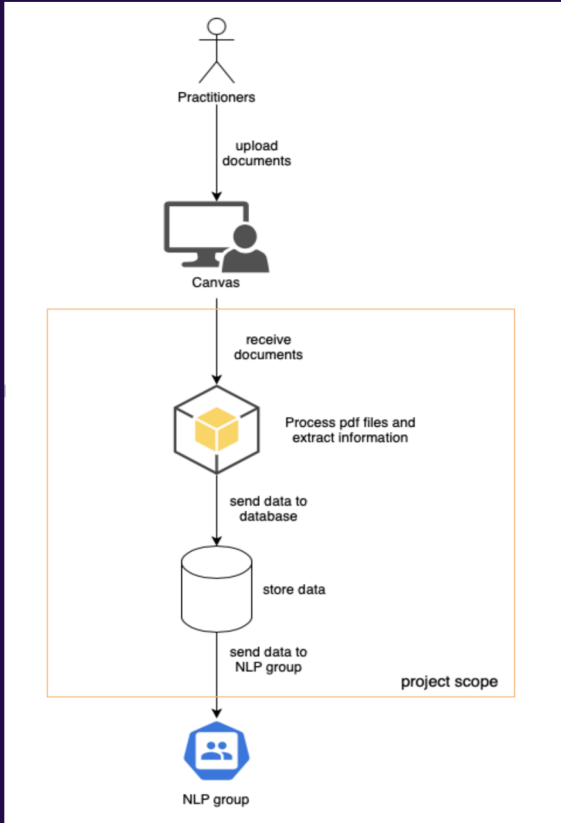
02

Practitioners receive scores/feedback

03

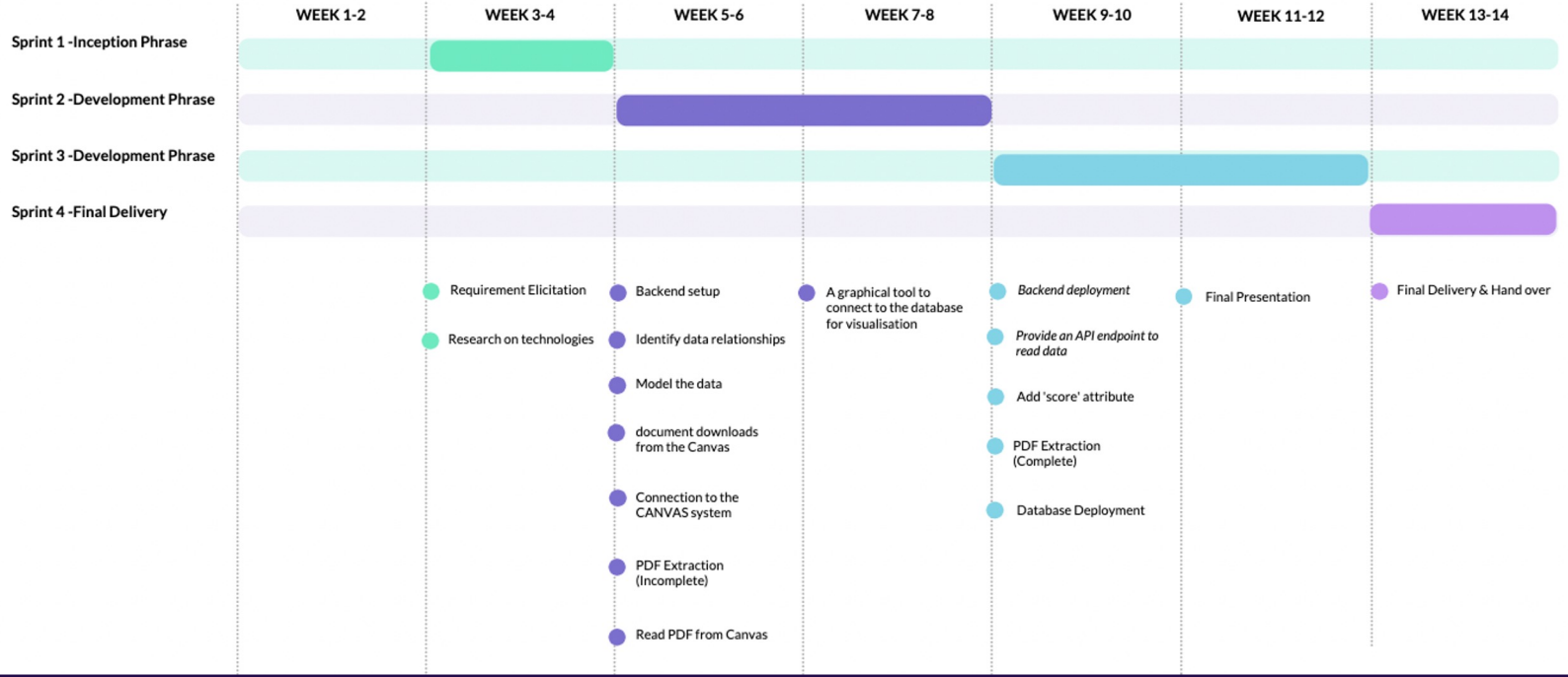
Data scientists receive data from the database

Project Scope

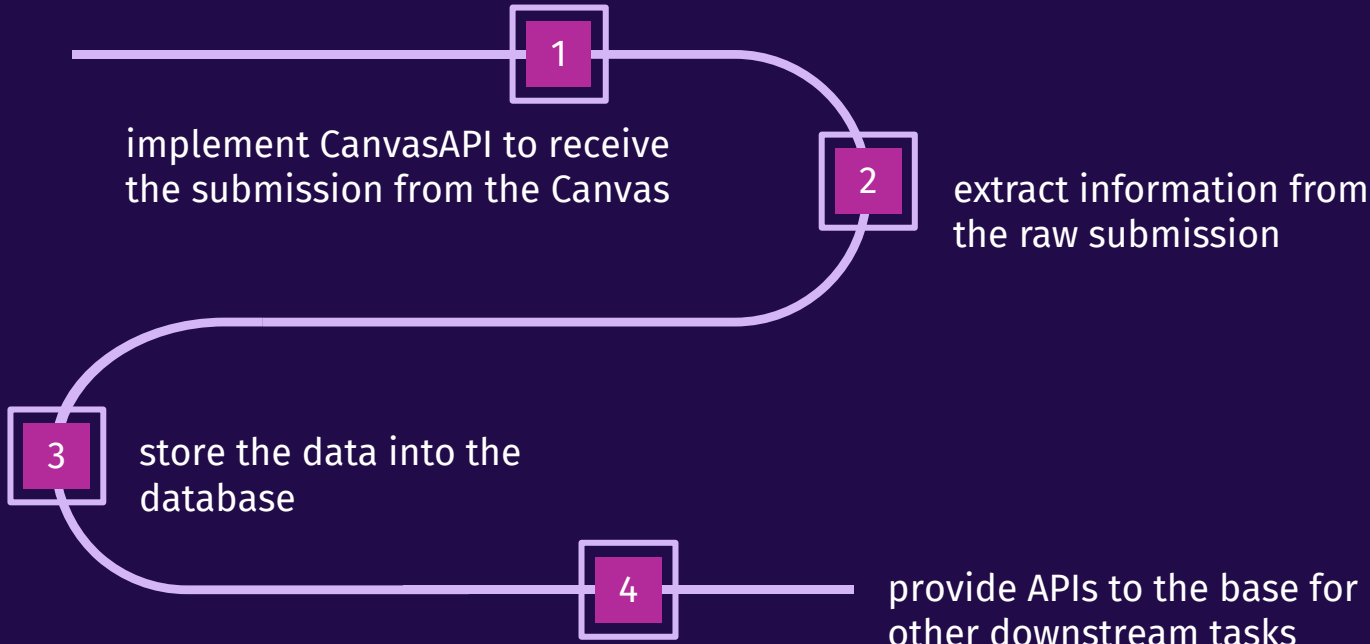


Live Demo

PROJECT TIMELINE



OUR PROCESS

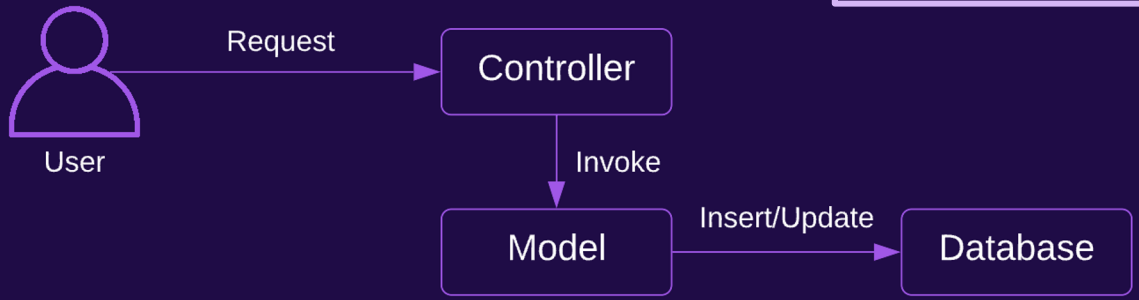

1
implement CanvasAPI to receive the submission from the Canvas
2
extract information from the raw submission
3
store the data into the database
4
provide APIs to the base for other downstream tasks

0

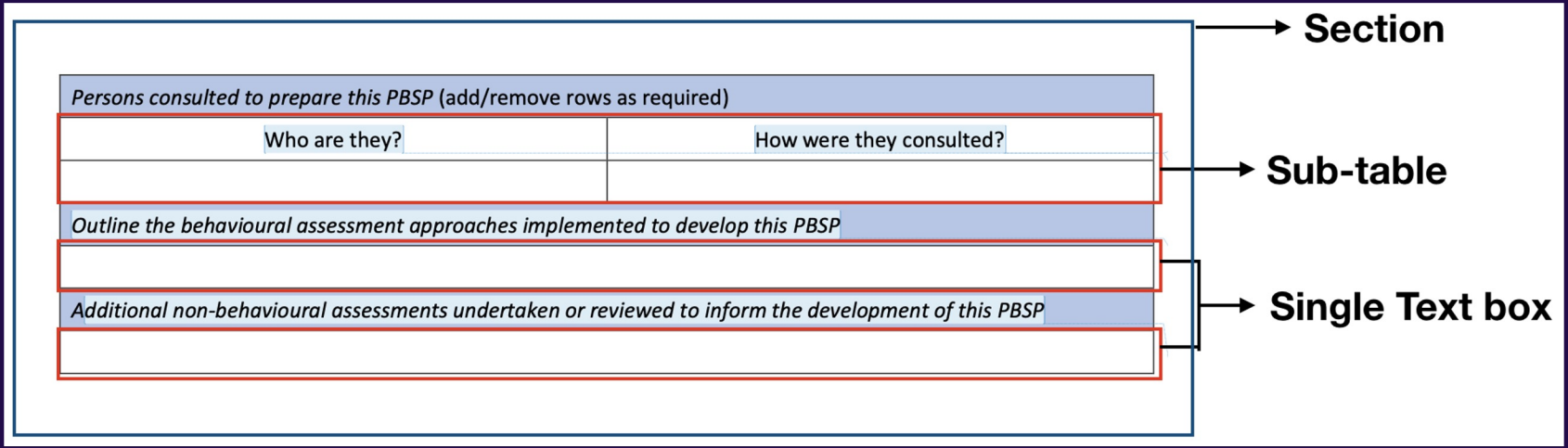
DESIGN ARCHITECTURE

Design Pattern

M(V)C Design Architecture



PDF section example

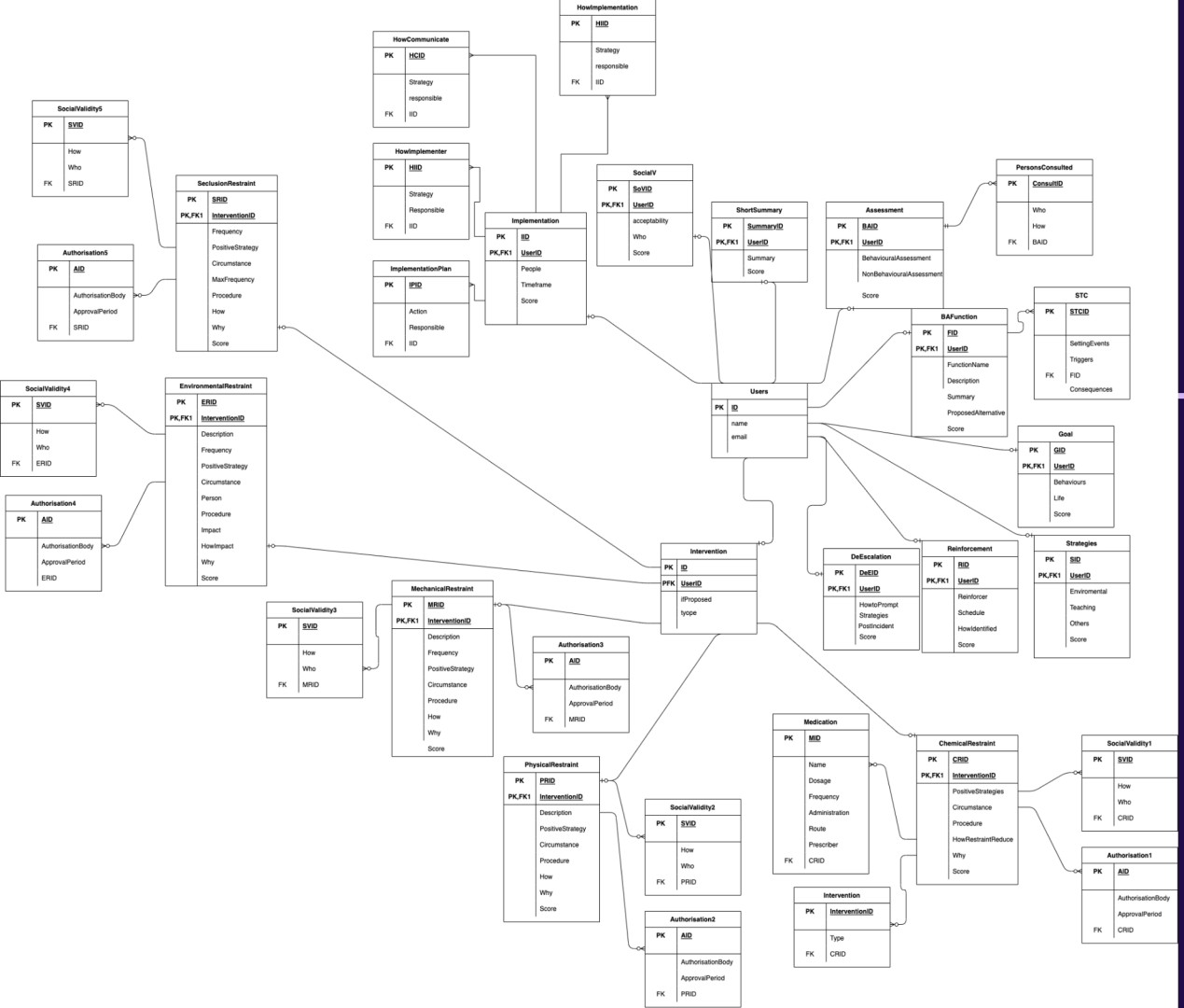


Persons consulted to prepare this PBSP (add/remove rows as required)	
Who are they?	How were they consulted?

Outline the behavioural assessment approaches implemented to develop this PBSP

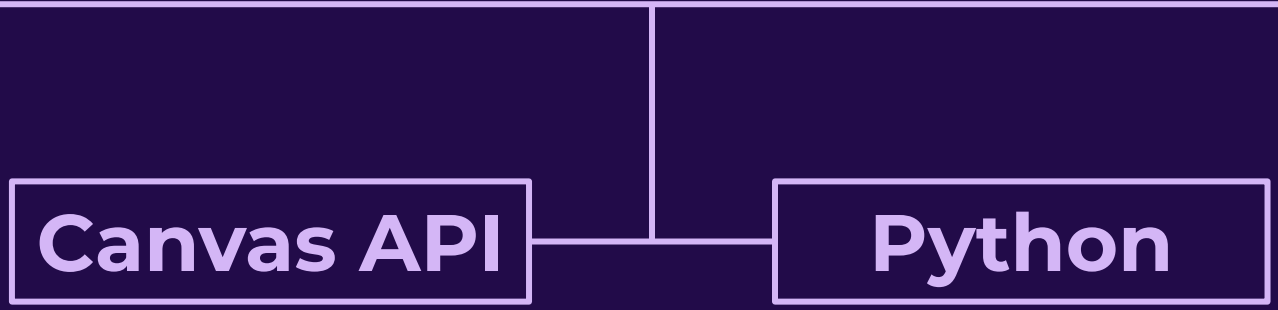
Additional non-behavioural assessments undertaken or reviewed to inform the development of this PBSP

Database Diagram



01

Canvas Connection



a link that can download
a zip file which conclude
all the pdfs

02

PDF Extraction

PDF Extraction

pdfminer.six library:
extract_text_to_fp(..output_type='html')

beautifulsoup library:
soup.find_all({style": "font-family: Calibri-Bold"})

'tabula' library:
read_pdf()

A PDF Document

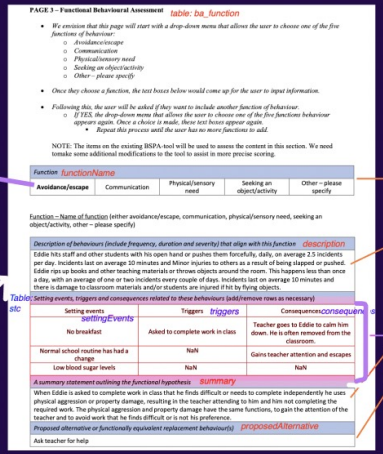
page 4

page 5

.

.

Page 3



PAGE 3 – Functional Behavioural Assessment table: ba_function

- *We envision that this page will start with a drop-down menu that allows the user to choose one of the five functions of behaviour:*
  - *Avoidance/escape*
  - *Communication*
  - *Physical/sensory need*
  - *Seeking an object/activity*
  - *Other – please specify*
- *Once they choose a function, the text boxes below would come up for the user to input information.*
- *Following this, the user will be asked if they want to include another function of behaviour.*
  - *If YES, the drop-down menu that allows the user to choose one of the five functions behaviour appears again. Once a choice is made, these text boxes appear again.*
    - *Repeat this process until the user has no more functions to add.*

NOTE: The items on the existing BSPA-tool will be used to assess the content in this section. We need to make some additional modifications to the tool to assist in more precise scoring.

Function functionName				
Avoidance/escape	Communication	Physical/sensory need	Seeking an object/activity	Other – please specify

Function – Name of function (either avoidance/escape, communication, physical/sensory need, seeking an object/activity, other – please specify)

Description of behaviours (include frequency, duration and severity) that align with this function description

Eddie hits staff and other students with his open hand or pushes them forcefully, daily, on average 2.5 incidents per day. Incidents last on average 10 minutes and Minor injuries to others as a result of being slapped or pushed. Eddie rips up books and other teaching materials or throws objects around the room. This happens less than once a day, with an average of one or two incidents every couple of days. Incidents last on average 10 minutes and there is damage to classroom materials and/or students are injured if hit by flying objects.

Table2 stc

Setting events, triggers and consequences related to these behaviours (add/remove rows as necessary)

Setting events settingEvents	Triggers triggers	Consequences consequent
No breakfast	Asked to complete work in class	Teacher goes to Eddie to calm him down. He is often removed from the classroom.
Normal school routine has had a change	NaN	Gains teacher attention and escapes
Low blood sugar levels	NaN	NaN

A summary statement outlining the functional hypothesis summary

When Eddie is asked to complete work in class that he finds difficult or needs to complete independently he uses physical aggression or property damage, resulting in the teacher attending to him and him not completing the required work. The physical aggression and property damage have the same functions, to gain the attention of the teacher and to avoid work that he finds difficult or is not his preference.

Proposed alternative or functionally equivalent replacement behaviour(s) proposedAlternative

Ask teacher for help

answers → insert into the database

sub_col_answers → insert into the database

03

Read from the database

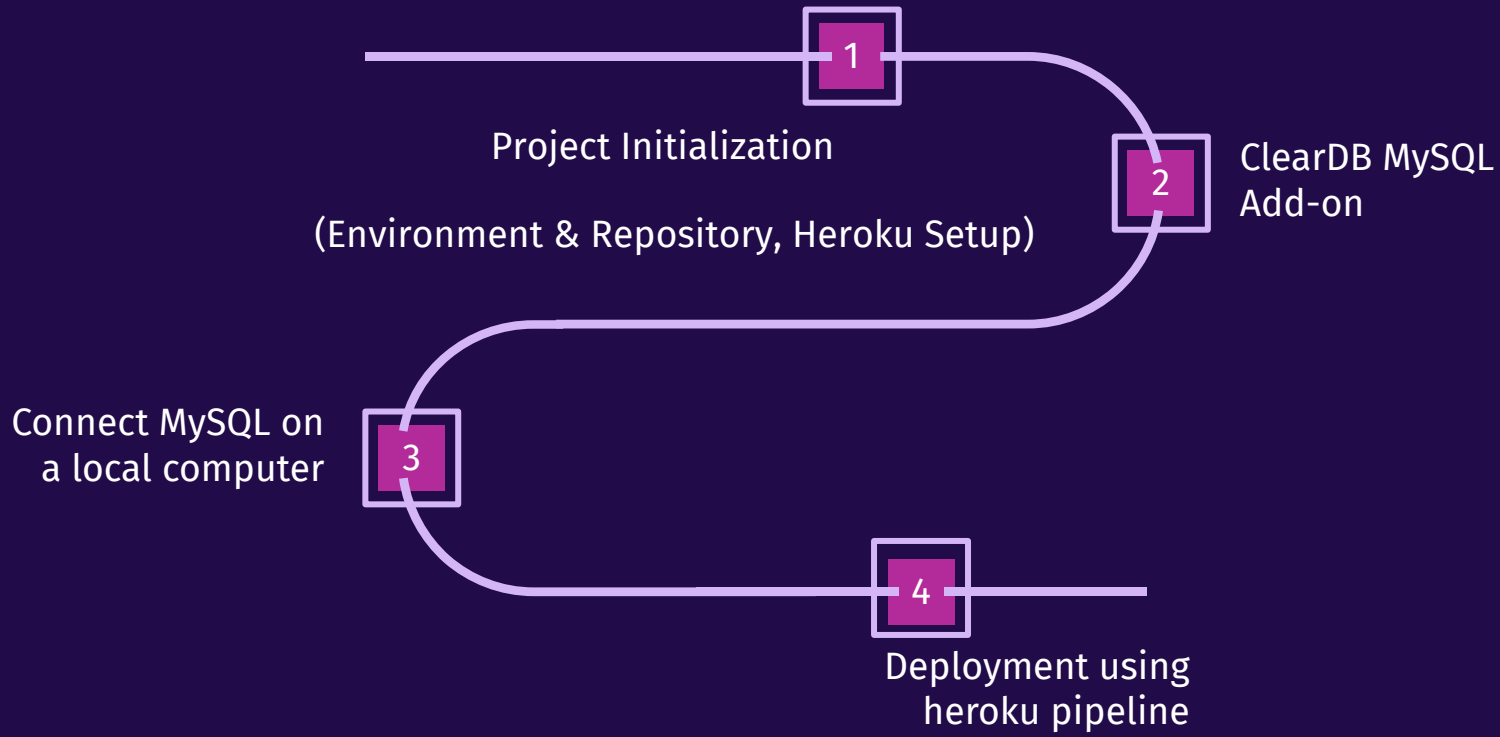
Read from the database


```
{
  "page1": {
    "summary": "  Taylor is an energetic and outdoor loving 23 year old.  He is very proud of his back yard and once he gets to know  a person, will invite them over to see his lawn and garden.  Taylor has lived in supported accommodation since he  was 21 years old. Taylor likes to get to know people before they come to his home. Taylor likes spending time with  others that can keep up with him and like spending time outside. Taylor enjoys having a big glass of cold water  with ice after his outside activities.  Taylor lives with two other gentlemen who are significantly older than Taylor  and who prefer to be inside rather than outside. Taylor does not seem to think being inside is much fun.  Taylor\u2019s  mother passed away when he was 21 and his father suffered a stroke shortly after the passing of his mother, at  which time Taylor entered supported accommodation. Taylor has two older brothers [Tim and Jason] who take  turns visiting Taylor once a month on a Saturday morning, sometimes taking Taylor [with staff support] to see his  dad who is in a nursing home approximately two hours\u2019 drive away.  It is uncertain if Taylor understands what has  happened to his parents, but he stopped signing for them after living in his home for a few months. Taylor looks  forward to seeing his brothers each month and will spend extra time in the back yard to make sure it is very tidy  for their visit.  Taylor enjoys going out, some of his favourite places to visit is the local park which has a gym  circuit, as well as basketball courts, soccer fields, the beach and bushwalking tracks.    Taylor responds with  support from his staff to members of the community with gestures, facial expressions and signs such as \u201cgood\u201d,  \u201cok\u201d, \u201chello\u201d and \u201cbye\u201d. Taylor has relaxed body language and posture when out with small groups. Taylor is  generally healthy, only experiencing minor colds once or twice a year.  Taylor is not fussy when it comes to food  and enjoys eating the healthy foods that staff prepare for him. Taylor also drinks plenty of water which further  supports his health. As Taylor is constantly on the go, he has sufficient exercise daily to support his health and  wellbeing. Taylor has damage to his frontal lobe that causes him to have short-term memory deficits.        "
  },
  "page2": {
    "behaviouralAssessment": "  A functional behaviour assessment that included the use of the Contextual Assessment Inventory, the Functional  Assessment Interview, scatterplots and ABC note cards, and semi-structured interviews.  ",
    "id": 97,
    "nonBehaviouralAssessment": "  Comprehensive Health Assessment Program (CHAP) by GP, Communication assessment by speech and language  pathologist, mental health assessment by neuropsychiatrist, and occupational therapy assessment by  occupational therapist.          ",
    "persons_consulted": "[{\"id\": 819, \"who\": \"Adult with disability\", \"how\": \"Direct observation\", \"assessment_id\": 97}, {\"id\": 820, \"who\": \"Family of adult\", \"how\": \"Interview \\u2013 face to face\", \"assessment_id\": 97}, {\"id\": 821, \"who\": \"Guardian\", \"how\": \"Interview \\u2013 face to face\", \"assessment_id\": 97}, {\"id\": 822, \"who\": \"Neuropsychiatrist\", \"how\": \"Interview \\u2013 telephone\", \"assessment_id\": 97}, {\"id\": 823, \"who\": \"Speech and language pathologist\", \"how\": \"Interview \\u2013 telephone\", \"assessment_id\": 97}, {\"id\": 824, \"who\": \"Graduate occupational therapist\", \"how\": \"Interview \\u2013 telephone\", \"assessment_id\": 97}, {\"id\": 825, \"who\": \"General practitioner\", \"how\": \"Interview \\u2013 telephone\", \"assessment_id\": 97}, {\"id\": 826, \"who\": \"Service manager\", \"how\": \"Interview \\u2013 telephone\", \"assessment_id\": 97}, {\"id\": 827, \"who\": \"House coordinator\", \"how\": \"Interview \\u2013 telephone\", \"assessment_id\": 97}, {\"id\": 828, \"who\": \"Direct support staff\", \"how\": \"Interview \\u2013 telephone\", \"assessment_id\": 97}]",
    "score": null,
    "user_id": 1
  },
  "page3": {
    "description": "  Full body slam [running into walls and other solid objects, forcefully connecting with head, torso and limbs  together] and hitting head on solid objects [walls] and hitting staff with head [forward head-butt to staff head or  shoulder area]. Before these behaviours occur, deep, he will show low vocalisations [humming progresses to  grunting] and pacing [3 fast steps back and forth] and runs towards staff, wide eyes and hands fisted at sides, stiff  body.  S",
    "functionName": "['Access \u2013  person/object/activity']",
    "id": 97,
    "proposedAlternative": "  Replace full body slam and hitting head behaviours with using a \u2018next\u2019 sign      ",
    "score": null,
    "stc": "[{\"id\": 289, \"settingEvents\": \"When Taylor has had a negative \\ninteraction with co-tenant/s earlier \\nin day\", \"trigger\": \"Unsure of what is happening next\", \"consequences\": \"Access to support staff\", \"f_id\": 97}, {\"id\": 290, \"settingEvents\": \"When Taylor has had schedule \\nchanges earlier in day\", \"trigger\": \"\", \"consequences\": \"\", \"f_id\": 97}, {\"id\": 291, \"settingEvents\": \"When Taylor is tired\", \"trigger\": \"\", \"consequences\": \"\", \"f_id\": 97}]",
    "summary": "  Taylor will make a deep humming/grunting noise and pace when he is unsure of what is happening next.  Taylor  does this to access staff support [the provision of information].  If staff do not respond to Taylor\u2019s deep  humming/grunting and pacing within two minutes and provide information on what is happening next, Taylor\u2019s  behaviour that causes harm to self or others will escalate and he will run towards and full body slam the closest  large solid object and commence hitting head on that object.  If staff do not respond to Taylor hitting his head and  full body slam into solid objects within 30 seconds and provide information on what is happening next, Taylor will  run towards staff, eyes wide, hands fisted at sides, stiff body and will hit staff in the head or shoulder area with his  own head.  This behaviour is more likely to occur if Taylor has had negative interaction with his cotenant/s, and/or  there are changes to his schedule earlier in the day, and/or he is tired.  ",
    "user_id": 1
  },
```

04

Deployment

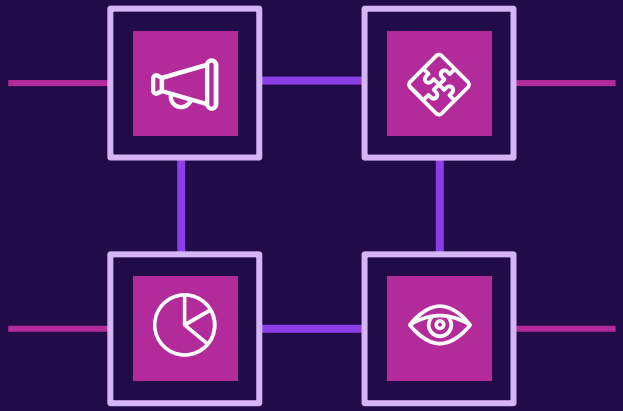
Deployment Workflow



Why Heroku

Takes cares of the infrastructure

Provisioning HTTPS certificates & Managing DNS records



Free to use

Publicly available

05

Hand-over

Our Products to deliver

- ☑️ locally-hosted application from uploading a file, extracting PDF contents, storing them to a database, and reading from the database

- ☑️ deployed application from extracting PDF contents, storing to a database server, and reading from the database server

Thank you!

Q & A

Reference

Flask: https://flask.palletsprojects.com/en/2.2.x/

MySQL: https://dev.mysql.com/

Heroku: https://dashboard.heroku.com/
Heroku documentation: https://devcenter.heroku.com/

ClearDB (Heroku add-on): https://devcenter.heroku.com/articles/cleardb

Azure: https://azure.microsoft.com/en-au/
Azure documentation: https://azure.microsoft.com/en-au/products/azure-sql/database/#overview