CAB230

ASSIGNMENT 1 – SERVER SIDE

DUE: 31 MAY 2019

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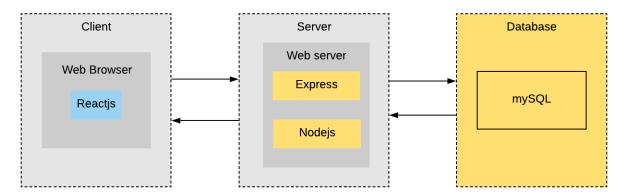
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Introduction

Server-Side Implementation Summary			
ID	Function Descri	Implementation Level	
1	Endpoints	Register (POST)	Implemented
2		Login (POST)	Implemented
3		Search (GET)	Implemented
4		Offences (GET)	Implemented
5		Areas (GET)	Implemented
6		Ages (GET)	Implemented
7		Genders (GET)	Implemented
8		Years (GET)	Implemented
9	Hash +	Register	Implemented
10	Authentication	Login	Implemented
11		Search	Implemented
12	Security	Certificate (HTTPS)	Implemented
13		Helmet (Content Security Policy component)	Implemented
14	Logging	Logger	Implemented
15	Middleware + Database connectivity	Express – Routes Knex Etc.	Implemented
16	Appropriate error handling and responses		Implemented
17	Swagger docs		Implemented

Technical description

Application architecture



React and Node.js is a very useful framework to manage client as well as the server-side. In server-side case, it can manage the server-side and database effectively (Existek, 2018).

Middleware

Middleware is a bridge between database and application, in this case, a connection between mySQL database and the user server. There is several middleware is used in this project:

- Express act as a database connection, routers.
- Knex a simpler way to create and manage DB connectivity.
- Logging (dev and common) used to track activities happen in requests as well as add headers to the processed token.

(Hogan, 2019)

Technical issues (problems)

Advance search couldn't filter out any offence name that contain & and / (e.g. Kidnapping & Abduction etc.)

Security

Security is a very crucial part for setting up the server-side. At first, the server is running on HTTP server, which according to Jim: "it's obviously undermines security" (Hogan, 2019). In order to improve the security, I use Helmet package, which provides some standard security measures. According to Jim, Helmet ensures that the HSTS or Strict Transport Security header is shown. After implementing helmet, I can use http://localhost:3000 (Hogan, 2019).

Next step is to implement certification for the project. I redirect the server to port 80 (not 3000 as before) and assign the SSL certificate to Google Chrome. After finish implementing security to the project, my server-side is now running on https://localhost (Hogan, 2019).

Test cases

Authentication

Test the authentication of register, login and search on Postman app

/register should allow user to register email and password using https://localhost/register link. New user account will be recorded in mySQL database with hashed password.

User can test different responses status using email and password (Details are included in appendix test cases)

- 201 user successfully registered
- 400 user already exists

/login should allow user to enter email and password using https://localhost/login link. User can login using recorded email and password.

User can test different responses status using email and password (Detail test cases are included in appendix test cases)

- 200 user successfully login
- 400 invalid password

/search should allow user to search different parameters (offences, areas, ages, genders, years and months) using, for example, https://localhost/search?offence=arson. User can test different responses status using different parameters (Detail test cases are included in appendix test cases)

- 200 result display
- 400 missing parameters query param
- 401 if user haven't login and have a token

Endpoints

Endpoints such as **register**, **login and search** should show swagger docs and other such as **offences**, **areas**, **ages**, **genders and years**, should show a list of those mentioned results (Detail test cases are included in appendix test cases).

Swagger docs

Swagger docs should mimic exactly from https://cab230.hackhouse.sh/docs#/. From display layout to responses.

Security

User should access https://localhost/ and not http://localhost:3000.

^{***}IMPORTANT: Details of test cases are included in Appendix Test Cases

References

- Existek, (2018). Web Application Architecture. Retrieved from https://existek.com/blog/web-application-architecture/ [Accessed on 2 June 2018]
- Hogan, J., (2019). CAB230 Web Computing Assignment Server-Side Specification. Retrieved from https://blackboard.qut.edu.au/bbcswebdav/pid-7956819-dt-content-rid-24079911 1/xid-24079911 1 [Accessed on 2 June 19]
- Hogan, J., (2019). Prac 8 Guide. Retrieved from https://blackboard.qut.edu.au/bbcswebdav/pid-7944079-dt-content-rid-23898272 1/xid-23898272 1 [Accessed on 2 June 19]
- Hogan, J., (2019). Prac 9 Guide. Retrieved from https://blackboard.qut.edu.au/bbcswebdav/pid-7953922-dt-content-rid-24363716 1/xid-24363716 1 [Accessed on 2 June 19]
- Hogan, J., (2019). Prac 10 Guide. Retrieved from https://blackboard.qut.edu.au/bbcswebdav/pid-7961405-dt-content-rid-24299892 1/xid-24299892 1 [Accessed on 2 June 19]

Appendix

Installation guides

- 1. Download Server-Side zip file
- 2. Open the Server-side file
- 3. Open terminal and type npm install
- 4. Npm install packages:
 - Bcrypt
 - Cookie-parser
 - Cors
 - Debus
 - Express
 - Helmet
 - http-errors
 - jade / pug
 - jsonwebtoken
 - knex
 - morgan
 - swagger-ui-express
 - build
- 5. Type npm start to start the server

Test cases

Authentication

Ste	ps	Expected result	Pass or Fail
1.	Open postman app		
2.	Access to https://localhost/register with POST request	Code 201 – Created (Check mySQL users table to see new user account)	PASS
3.	On headers tab, add authorization and value token.	<pre>{ "message": "yay! you've successfully registered your user account :)"</pre>	
4.	Enter key email and password	}	
5.	Enter value email and password		
6.	Click sent button		
7.	Enter wrong value for email/password	Code 400 - Display error message user is already existing	PASS
8.	Click sent button	<pre>{ "message": "oops! It looks like that user already exists : (" }</pre>	
1.	Access to	Code 401 – Unauthorisation	
	https://localhost/search?offence=arson	<pre>{ "message": "oh no! it looks like your authorization token is invalid" }</pre>	
1.	Access to https://localhost/login with POST	Code 200 – OK	PASS
	request		
2.	Enter key email and password		
3.	Enter value email and password		
4.	Click sent button		

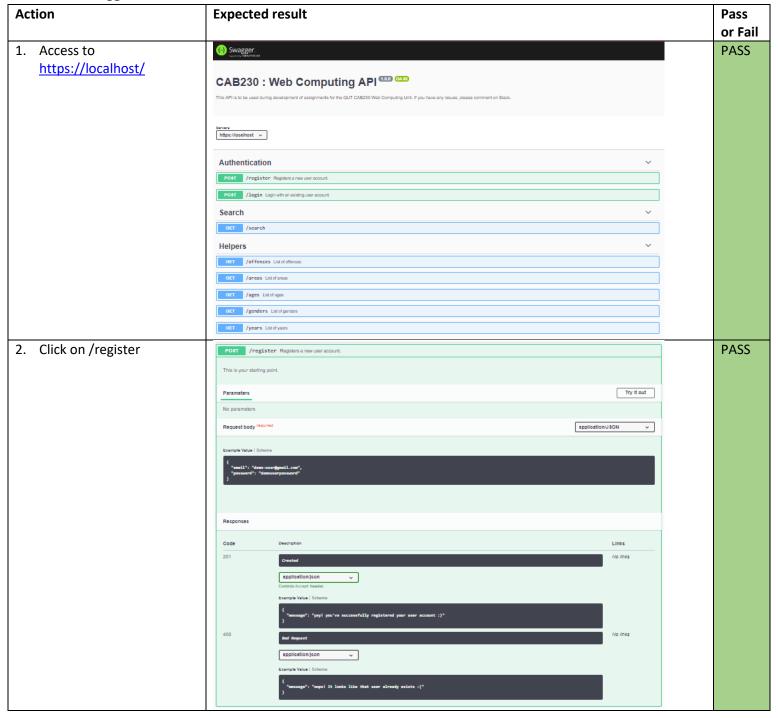
		{ "access_token": "access_token": "eyJhbGciOiJIUzIINiIsInR5cCI6IkpXVCJ9.eyJ1c2VyIjp7ImlkIjoINzg2LCJ1bWFpbCI6ImR1bW8xMjM0Q GdtYNIsImWb5J9CJpYXQiOjEINTUzMjQ2MDIsImV4cCI6MTUINTQxMTAwMn0.mo85iKuAQ_h8n8- 6pkeNNs5CCnV0G8hScxhi ml_Q6c", "token_type": "Bearer", "expires_in": 86400 }	
5.	Enter wrong value email/password	Code 401 – Bad Request	PASS
6.	Click sent button	{ "message": "invalid login - bad password" }	
1.	Access to https://localhost/search?offence=arson	<pre>Code 200 - OK { "query": { "offence": "Homicide (Murder)" }, "result": [{ "LGA": "Aurukun Shire Council", "total": 4, "lat": -27.470812, "lng": 153.022455 }] }</pre>	PASS
2.	Access to <a href="https://localhost/search?offence=" https:="" localhost="" sea<="" search?offence="https://localhost/search?offence=" td=""><td>Code 400 — Bad Request { "message": "oops! it looks like you're missing the offence query parm" }</td><td></td>	Code 400 — Bad Request { "message": "oops! it looks like you're missing the offence query parm" }	

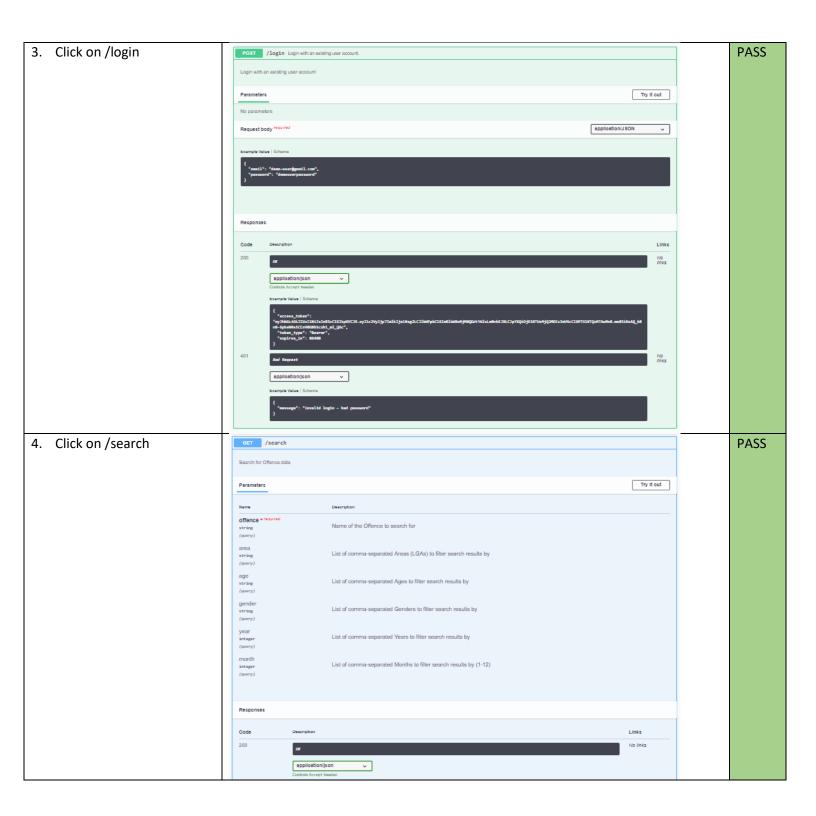
Endpoints

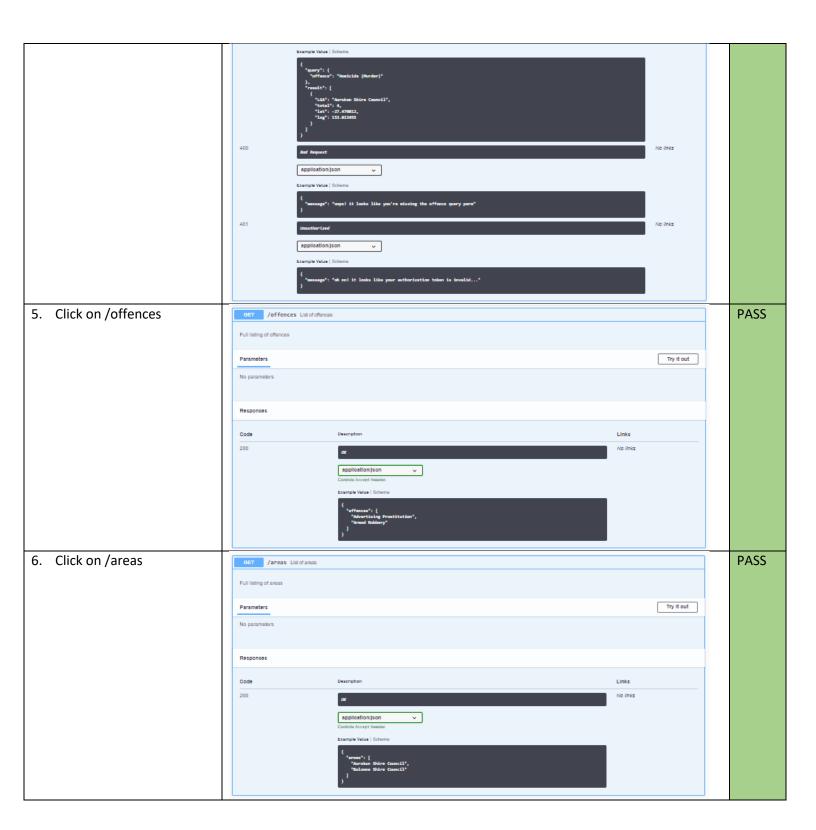
Ste	ps	Expected result	Pass or Fail
1.	Open Google Chrome		
2.	Access to https://localhost/	Show Swagger docs	PASS
3.	Access to https://localhost/register	Show Swagger docs Swagger. CAB230: Web Computing API This API is to be used during development of assignments for the QUT CAB230 Web Computing Unit. If you have any issues, please comment on Slack. Servers	PASS
4.	Access to https://localhost/login	Authentication POST /register Registers a new user account. POST /login Login with an existing user account. Search GET /search Helpers GET /offences List of offences	PASS
5.	Access to https://localhost/search ?	Code 401 — Unauthorisation message {"error":true,"message":"oops! it looks like you're missing the authorization header"}	PASS
6.	Access to https://localhost/offences	Display a list of offences from mysql database {"offences": ["Advertising Prostitution", "Armed Robbery", "Arson", "Assault", "Attempted Murder", "Bomb Possess and/or use of", "Breach Domestic Violence Protection Order", "Common Assault", "Conspiracy to Murder", "Dangerous Operation of a Vehicle", "Disobey Move-on Direction", "Disqualified Driving", "Drink Driving", "Driving Causing Death", "Drug Offences", "Extortion", "Fare Evasion", "Found in Places Used for Purpose of Prostitution Offences", "Fraud", "Fraud by Cheque", "Fraud by Computer", "Fraud by Credit Card", "Gaming Racing & Betting Offences", "Good Order Offences", "Grievous Assault", "Handling Stolen Goods", "Have Interest in Premises Used for Prostitution Offences", "Homicide (Murder)", "Identity Fraud", "Interfere with Mechanism of Motor Vehicle", "Kidnapping & Abduction etc.", "Knowingly Participate in Provision Prostitution Offences", "Life Endangering Acts", "Liquor (excl. Drunkenness)", "Manslaughter (excl. by driving)", "Manslaughter Unlawful Striking Causing Death", "Miscellaneous Offences", "Offences Against Property", "Offences Against the Person", "Other Drug Offences", "Other Fraud", "Other Handling Stolen Goods", "Other Homicide", "Other Property Damage", "Other Offences", "Other Offences Against the Person", "Other Property Damage", "Other Prostitution Offences", "Other Sexual Offences", "Other Stealing", "Other Theft (excl. Unlawful Entry)", "Permit Minor to be at a Place Used for Prostitution Offences Drugs", "Prossess Property Suspected Stolen", "Proscuring Prostitution", "Produce Drugs", "Prossess and/or use other weapons; restricted items", "Possess Drugs", "Possess etc. Tainted Property", "Possess Property Suspected Stolen", "Procuring Prostitution", "Produce Drugs", "Prostitution Offences", "Public Nuisance", "Public Soliciting", "Rape and Attempted Rape", "Receiving Stolen Property", "Resist Incite Hinder Obstruct Police", "Robbery", "Sell Supply Drugs", "Serious Assault", "Serious Assault (Other)", "Sexual Offences", "Thaffick	PASS
7.	Access to https://localhost/areas	Display a list of areas from mysql database	PASS

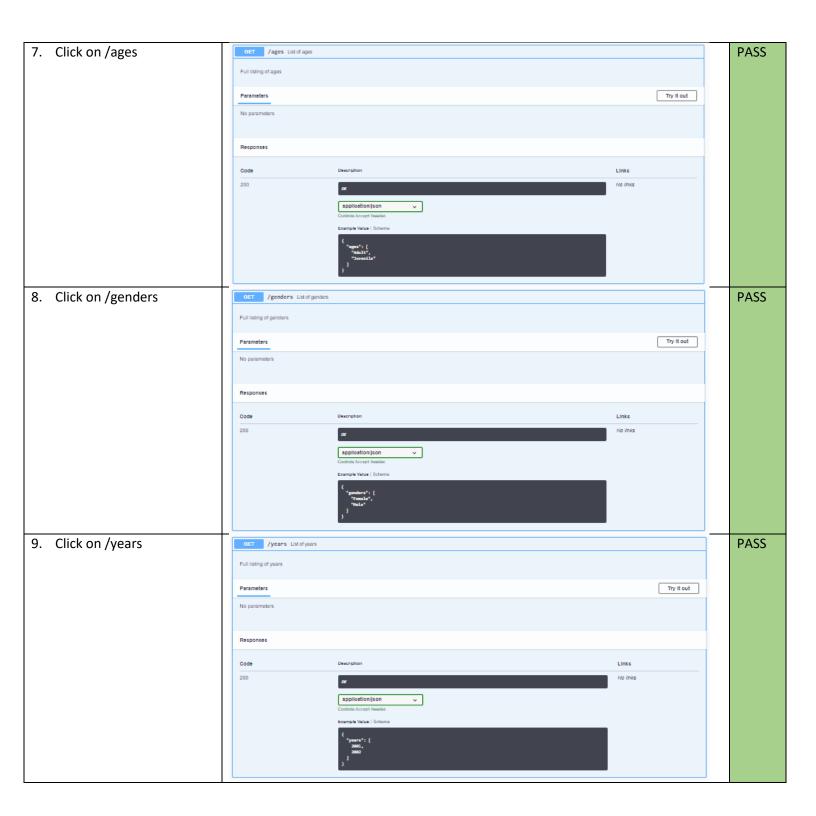
	{"areas":["Aurukun Shire Council", "Balonne Shire Council", "Banana Shire Council", "Barcaldine Regional Council", "Barcoo Shire Council", "Blackall Tambo Regional Council", "Boulia Shire Council", "Burloo Shire Council", "Bundaberg Regional Council", "Burdekin Shire Council", "Burke Shire Council", "Garins Regional Council", "Carpentaria Shire Council", "Cassowary Coast Regional Council", "Central Highlands Regional Council", "Charters Towers Regional Council", "Cherbourg Shire Council", "Cloncurry Shire Council", "Cook Shire Council", "Cryodon Shire Council", "Diamantina Shire Council", "Doomadgee Shire Council", "Douglas Shire Council", "Etheridge Shire Council", "Fraser Coast Regional Council", "Gladstone Regional Council", "Gladstone Regional Council", "Good Coast City Council", "Goondiwindi Regional Council", "Gladstone Regional Council", "Good Coast City Council", "Hope Vale Shire Council", "Ipswich City Council", "Isaac Regional Council", "Mope Vale Shire Council", "Ipswich City Council", "Isaac Regional Council", "Mockey Regional Council", "Maponon Shire Council", "Morgach Regional Council", "Makay Regional Council", "Maponon Shire Council", "Morgach Regional Council", "Makay Regional Council", "Morgach Regional Council", "Nosthern Downs Shire Council", "Nosthern Downs Regional Council", "Southern Downs Regional Council", "Southern Downs Regional Council", "Southern Downs Regional Council", "Torres Shire Council", "Torres Strait Island Regional Council", "Townowomba Regional Council", "Weipa Town Council", "Wolfer Down Regional Council", "Whitsunday Regional Council", "Whitsu	
8. Access to https://localhost/ages	Display a list of ages from mysql database {"ages":["Adult","Juvenile"]}	PASS
9. Access to https://localhost/genders	Display a list of genders from mysql database {"genders":["Female","Male","Not Stated"]}	PASS
10. Access to https://localhost/years	Display a list of years from mysql database {"years": [2001,2002,2003,2004,2005,2006,2007,2008,2009,2010,2011,2012,2013,2014,2015,2016,2017,2018,2019]}	PASS

Swagger docs









Interact with Swagger docs

Action	Expected result	Pass or Fail
10. Access to https://localhost/register swagger doc 11. Click Try it out button. 12. Enter email and password 13. Click execute button	Display respond code - 201 { "message": "yay! you've successfully registered your user account:)" } - 400 { "message": "oops! It looks like that user already exists: (" }	PASS
 Access to https://localhost/login swagger doc Click Try it out button Enter email and password Click execute button 	Executable and display respond code 200 if user information is correct { "access_token": "eyJhbGci0iJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJ1c2VyIjp7ImlkIj01Nzg2 LCJ1bWFpbCI6ImR1bW8xMjM0QGdtYW1sLmNvb5J9LCJpYXQi0jE1NTUzMjQ2MD IsImV4cCI6MTUINTQxMTAwMn0.mo85iKuAQ_h8n8- 6pkeNNs5CCnV0G8h5cxhi_ml_Q6c", "token_type": "Bearer", "expires_in": 86400 }	PASS
	Executable and display respond code 401 if user password is incorrect { "message": "invalid login - bad password" }	PASS
 Access to https://localhost/search? swagger doc Click Try it out button without login Enter offence: arson Click execute button 	Executable and display respond code 401 { "message": "oh no! it looks like your authorization token is invalid" }	PASS
 Access to https://localhost/search? swagger doc Logging in Click Try it out button Enter right offence and/or area and/or age and/or gender and/or year and/or month Click execute button 	Executable and display respond code 200 with the search input data { "query": { "offence": "Homicide (Murder)" }, "result": [{ "LGA": "Aurukun Shire Council", "total": 4, "lat": -27.470812, "lng": 153.022455 } } Example:	PASS
 Access to https://localhost/search? swagger doc Logging in Click Try it out button 	Executable and display respond code 400 { "message": "oops! it looks like you're missing the offence query parm" }	PASS

4.	Enter wrong offence and/or area and/or age and/or gender and/or year and/or month		
5.	Click execute button		
1. 2. 3.	Access to https://localhost/docs	Executable and display responses message - 200: "OK" - with response body, a list of offences, and response headers access-control-allow-origin: * content-length: 2400 content-security-policy: default-src * data: 'unsafe-eval' 'unsafe-inline' content-type: application/json; charset=utf-8 date: Sat, 01 Jun 2019 12:23:05 GMT etag: W/"960-04zLdTMbyLvNb4Bvz7naOH7ubZs" referrer-policy: no-referrer-when-downgrade server: nginx status: 304 strict-transport-security: max-age=15552000; includeSubDomains, max-age=31536000; includeSubDomains; preload x-content-type-options: nosniff, nosniff x-download-options: noopen x-frame-options: SAMEORIGIN, SAMEORIGIN x-xss-protection: 1; mode=block, 1; mode=block	PASS
	Access to https://localhost/docs	Executable and display responses message	PASS
	Click on helpers /areas	- 200: "OK" - with response body, a list of areas, and response	
3.	Click Try it out button	headers (similar to offences response headers)	
4.			
	Access to https://localhost/docs	Executable and display responses message	PASS
	Click on helpers /ages	- 200: "OK" - with response body, a list of ages, and response	
3.		headers (similar to offences response headers)	
4.			D. 1.00
	Access to https://localhost/docs	Executable and display responses message	PASS
	Click on helpers /genders	- 200: "OK" - with response body, a list of genders, and response	
3.	,	headers (similar to offences response headers)	
4.		E	DAGG
	Access to https://localhost/docs	Executable and display responses message	PASS
	Click on helpers /years	- 200: "OK" - with response body, a list of years, and response	
	Click Try it out button	headers (similar to offences response headers)	
14.	Click execute button		

Security

