EMPLOYEES APP – REPORTING

PROJECT SUMMARY

REPORT DATE	PROJECT NAME	PREPARED BY
2022-05-15	Employees App 1.0	Byron Tomkinson

PROJECT SUMMARY

An app that allows you to view, sort and filter employee and business information.

SCOPE

BRAND	StarLink Group
MARKET	South Africa, Nigeria
API	YES
MOBILE	NO
Frontend	YES
Backend	YES

CHANGE HISTORY

VERSION	DATE	DESCRIPTION
1.0	2022-05-15	First version ENG

CONTACT PERSONS

| SIDE	SCOPE	NAME AND SURNAME	E-MAIL
Client	Developer	Andrew Smith	andrew.smith@supchain.com
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Software House	Analysis	Jack Long	Jack.long@softwarehouse.com

1. INTRODUCTION

1.1 Business purpose

This project is a module part of a larger project and was introduced in order to easily view and analyze employee information. In this module, employees and other business-related information are displayed with filtering and sorting made effortless.

1.2 Description of dependencies

This module is part of a larger project which includes the App Management, Capture and App Access Control.
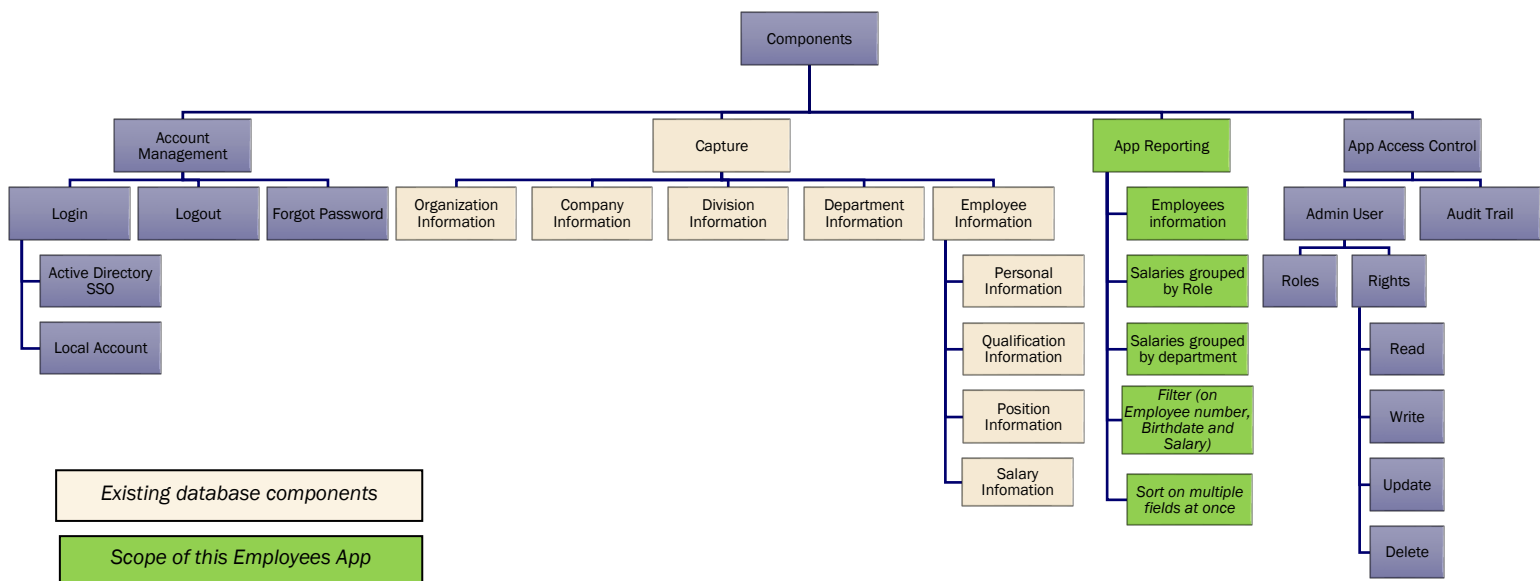
1.3 Definitions

User – the person that works with the Employees App.
Filter – generating a list based on certain specific criteria.
Sort – ordering a list.
Organogram - graphical representation of an organization's structure.

2. GRAPICAL DESIGN

2.1 Home screen

- 2.1.1   1 – Go to organogram
- 2.1.2   2 – Display list of employee salaries grouped per role
- 2.1.3   3 – Display list of employee salaries grouped per department
- 2.1.4   4 – Filter "column" field
- 2.1.5   5 – Filter "from" field
- 2.1.6   6 – Filter "to" field
- 2.1.7   7 – Activate filter
- 2.1.8   8 – Remove filter
- 2.1.9   9 – Generic search for employees list
- 2.1.10   10 – Sort "column" field
- 2.1.11   11 – Sort "order by" field
- 2.1.12   12 – Activate sort
- 2.1.13   13 – Remove sort
- 2.1.14   14 – Refresh the employees list

2.2 Organogram screen
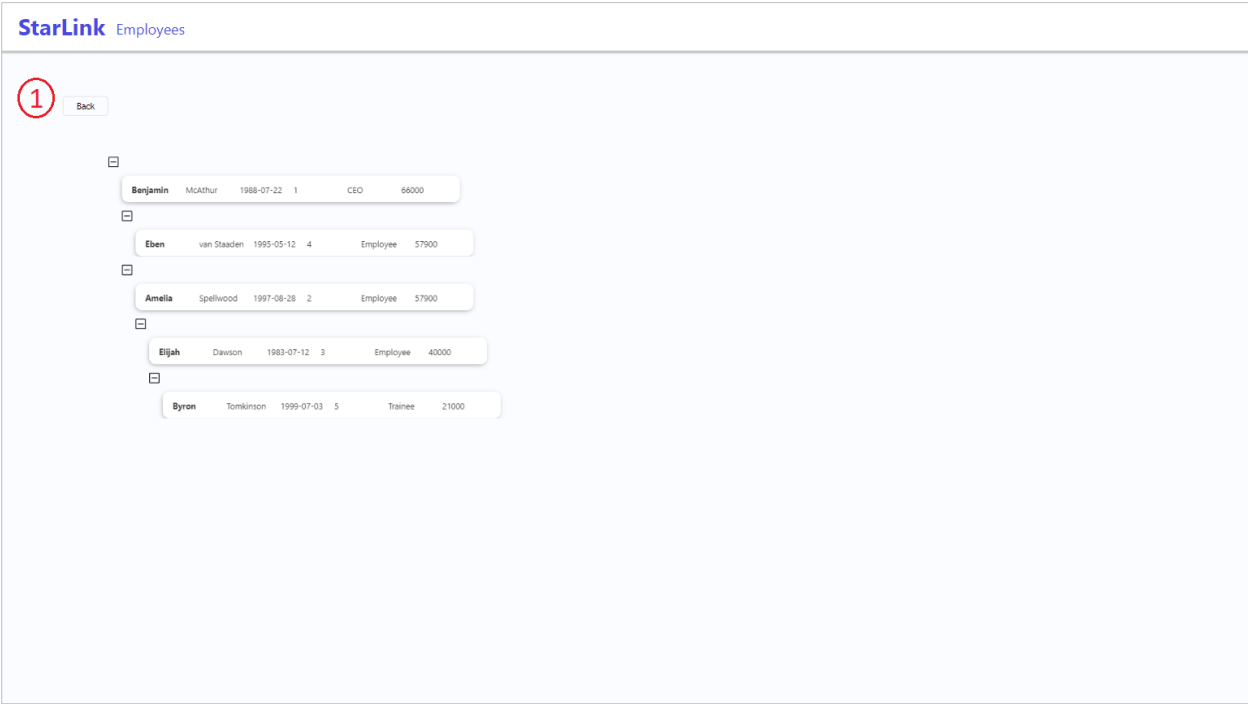
2.2.1   1 – Back to home screen button

2.3 Salaries grouped per Role screen
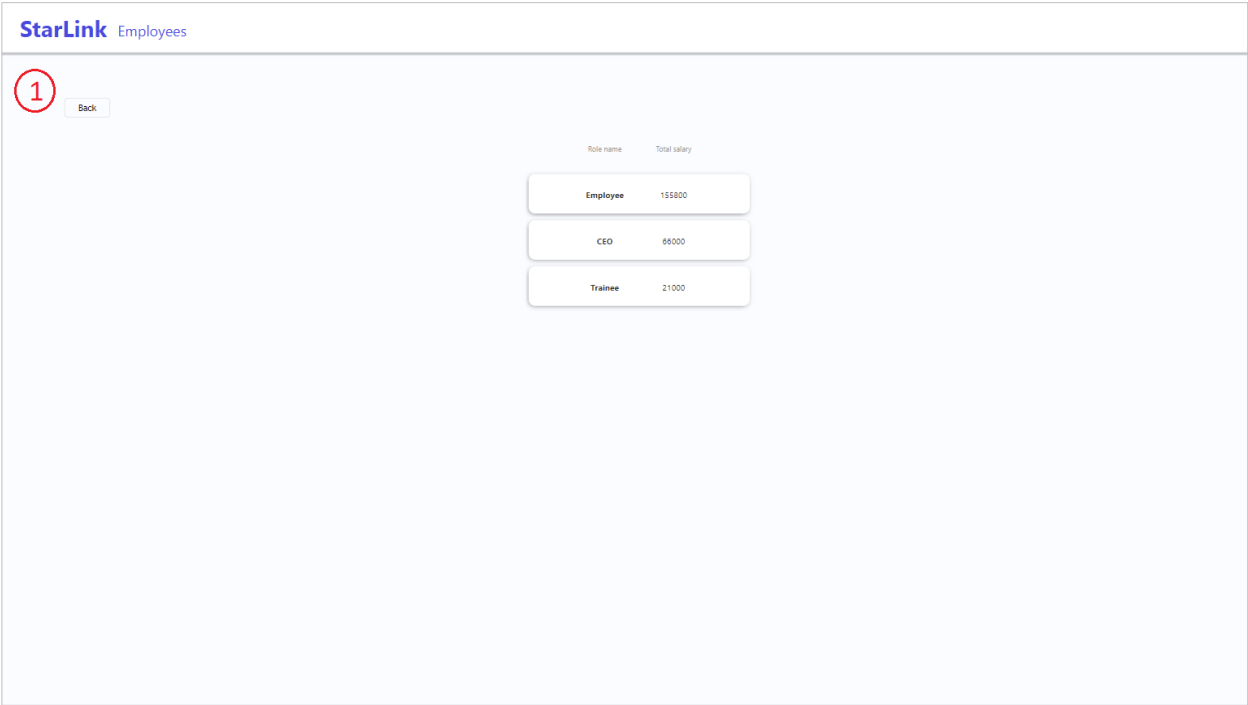
2.3.1   1 – Back to home screen button

2.4 Salaries grouped per Department screen

2.4.1   1 – Back to home screen button

3. DESCRIPTION OF FORM FIELDS

3.1 Filter fields

3.1.1   **Column field** – selects the column on which filtering is done

3.1.2   **From field** – select the "from" range value (If birthdate is selected as the column field: Input must be in date format (YYYY-MM-DD))

3.1.3   **To field** – select the "to" range value (Can be empty if the From field is not empty. If birthdate is selected as the column field: Input must be in date format (YYYY-MM-DD))

3.2 Sort fields

3.2.1   **Column field** – select the column on which sorting is done (**if multiple columns are selected**, sorting will be done in the order in which selection was done e.g., if role_name is selected first and total_salary is selected second, the list will sort according to role first and then salary - in the case where a user wants to see the highest earning salaries in a specific role).

3.2.2   **Order field** – select the order in which the list will be sorted (Ascending or Descending).

4. USER STORIES AND TESTING SCENARIOS
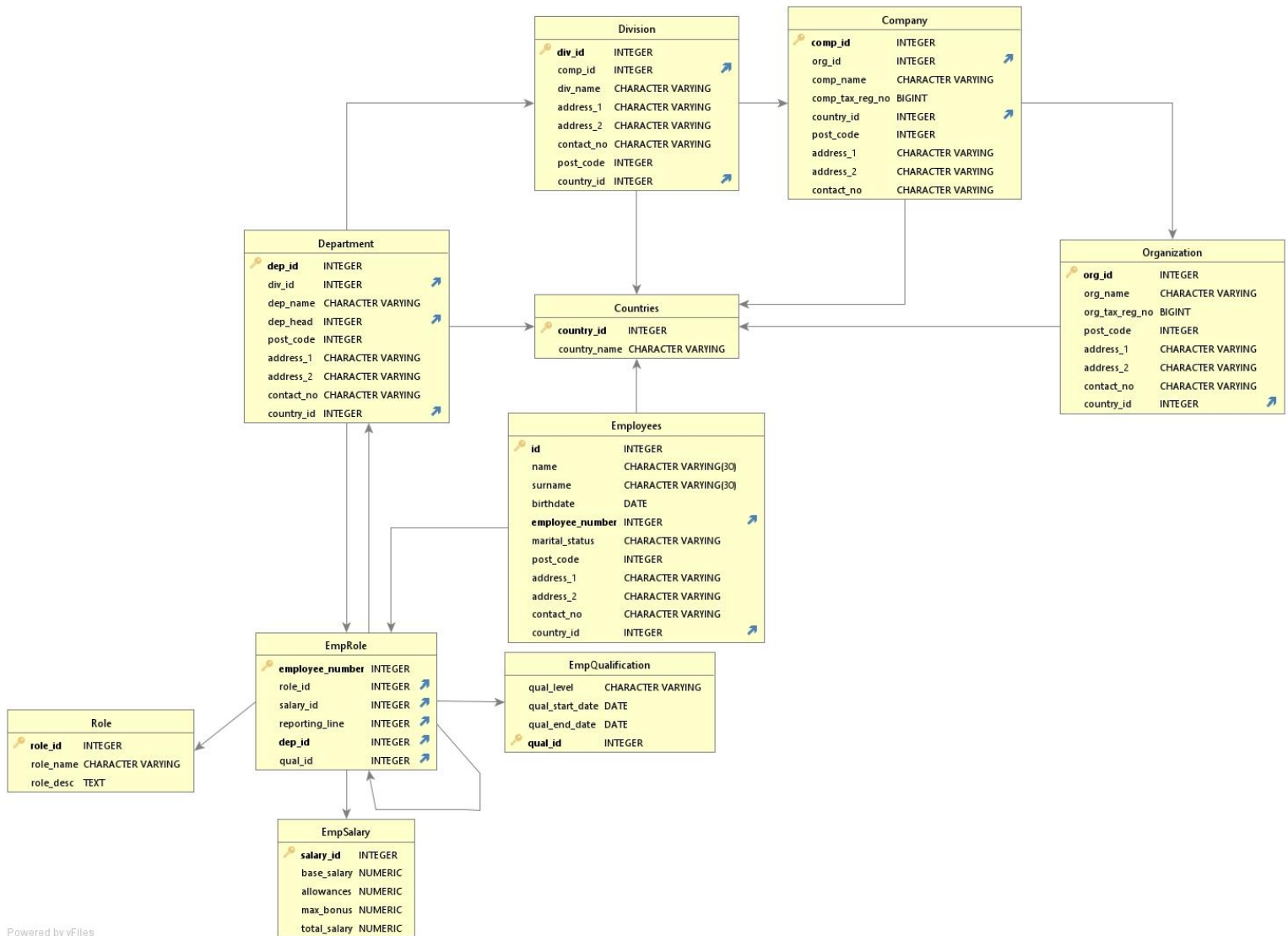
4.1 User stories

Functionality	Title	User story	Acceptance criteria
Searching employees	Searching for employee's contact details	As a user I would like to search an employee's surname in order to obtain their contact details so I can get in contact with them.	Any text input data is accepted for the search
	Searching for employee's salary	As a user I would like to search the employee by name in order to find out what their current salary is.	Any text input data is accepted for the search
Filtering employees	Filtering all employees who were born after a certain year	As a user I would like to create a list of all users born after 1997 so I can see how many Gen Z employees we have.	"From" field must have input as a proper date in the format (YYYY – MM - DD)
	Filtering all employees with a salary above a certain value	As a user I would like to list all employees with a salary above R50 000.	"From" field must have a number as input.
	Filtering employees to obtain an employee with a certain employee number	As a user I would like to obtain an employee's records with the employee number 3.	"From" field must have a number as input.
Sorting employees	Sorting employees based on highest earnings, grouped per role	As a user I would like to sort the employees showing the highest earning employee in the "Employees" role.	Both fields are drop down select options, therefore, no acceptance criteria.
	Sorting employees based on highest earnings per qualification level	As a user I would like to sort the employees showing the highest earning employee in the "Bachelors" qualification.	Both fields are drop down select options, therefore, no acceptance criteria.
Display	Display organogram	As a user I would like to see who each employee reports to in an organized structure.	None
	Display salaries per role	As a user I would like to see how much money is being spent in the "Trainee" role.	None
	Display salaries per department	As a user I would like to see how much money is being spent in the infrastructure department.	None

4.2 Testing scenarios for filter

Column field	From field	To field	Output	Message
Birthdate	1995-07-01	-	OK	-
Birthdate	1995-07-01	12	ERROR	Please enter a valid "to" date
Birthdate	32fr	1995-02-12	ERROR	Please enter a valid "from" date
Employee number	5	5	OK	-
Employee number	fd	5	ERROR	Please enter a valid "from" number
Salary	50000	-	OK	-
Salary	50000	100000	OK	-
Salary	-	40000	ERROR	Please enter a valid "from" number

5. DATABASE

The database was designed using in Postgres 14 and an entity relationship diagram (ERD) of the enterprise database can be found in figure 1.

Figure 1: ERD diagram of the enterprise database

6. API

GET requests

1. **Request URL**: https://starlink-employees.herokuapp.com/employees/
   Response:

```
 1   [
 2       {
 3           "id": 5,
 4           "name": "Byron",
 5           "surname": "Tomkinson",
 6           "birthdate": "1999-07-03T00:00:00.000Z",
 7           "employee_number": 5,
 8           "marital_status": "Single",
 9           "post_code": 1692,
10           "address_1": "88 Moan street",
11           "address_2": "Midrand",
12           "contact_no": "0768796473",
13           "country_name": "South Africa",
14           "total_salary": "21000",
15           "reporting_line": 3,
16           "role_name": "Trainee",
17           "dep_name": "Infrastructure",
18           "div_name": "IT",
19           "comp_name": "Starlink SA",
20           "org_name": "Starlink Group",
21           "qual_level": "Bachelors"
22       },
23       {
24           "id": 1,
25           "name": "Benjamin",
26           "surname": "McAthur",
27           "birthdate": "1988-07-22T00:00:00.000Z",
28           "employee_number": 1,
29           "marital_status": "Married",
30           "post_code": 1456,
31           "address_1": "12 Folksbery",
32           "address_2": "Pretoria",
33           "contact_no": "0835268546",
34           "country_name": "South Africa",
35           "total_salary": "66000",
36           "reporting_line": null,
37           "role_name": "CEO",
38           "dep_name": "Infrastructure",
39           "div_name": "IT",
40           "comp_name": "Starlink SA",
41           "org_name": "Starlink Group",
42           "qual_level": "PhD"
43       },
44       {
45           "id": 2,
46           "name": "Eben",
47           "surname": "van Staaden",
48           "birthdate": "1995-05-12T00:00:00.000Z",
49           "employee_number": 4,
50           "marital_status": "Single",
```

2. **Request URL:** https://starlink-employees.herokuapp.com/employees/sgr
   Response:

```
 1  [
 2      {
 3          "role_name": "Employee",
 4          "sum": "155800"
 5      },
 6      {
 7          "role_name": "CEO",
 8          "sum": "66000"
 9      },
10      {
11          "role_name": "Trainee",
12          "sum": "21000"
13      }
14  ]
```

3. **Request URL:** https://starlink-employees.herokuapp.com/employees/sgd
   Response:

```
 1  [
 2      {
 3          "dep_name": "Infrastructure",
 4          "sum": "184900"
 5      },
 6      {
 7          "dep_name": "Accounts",
 8          "sum": "57900"
 9      }
10  ]
```

POST requests

1. **Request URL:** https://starlink-employees.herokuapp.com/employees/filter
   Body:

```
{
    "selectedFilterField":"Salary",
    "selectedStartFilter":"30000",
    "selectedEndFilter":"60000"
}
```

   Response:

```
1   [
2       {
3           "id": 2,
4           "name": "Eben",
5           "surname": "van Staaden",
6           "birthdate": "1995-05-11T22:00:00.000Z",
7           "employee_number": 4,
8           "marital_status": "Single",
9           "post_code": 1456,
10          "address_1": "14 Joobly crescent",
11          "address_2": "Pretoria",
12          "contact_no": "0831234533",
13          "country_name": "South Africa",
14          "total_salary": "57900",
15          "reporting_line": 1,
16          "role_name": "Employee",
17          "dep_name": "Accounts",
18          "div_name": "Finance",
19          "comp_name": "Starlink SA",
20          "org_name": "Starlink Group",
21          "qual_level": "Bachelors"
22      },
23      {
24          "id": 3,
25          "name": "Amelia",
26          "surname": "Spellwood",
27          "birthdate": "1997-08-27T22:00:00.000Z",
28          "employee_number": 2,
29          "marital_status": "Married",
30          "post_code": 1965,
31          "address_1": "32 Avenue",
32          "address_2": "Fairland",
33          "contact_no": "0764238472",
34          "country_name": "South Africa",
35          "total_salary": "57900",
36          "reporting_line": 1,
37          "role_name": "Employee",
38          "dep_name": "Infrastructure",
39          "div_name": "IT",
40          "comp_name": "Starlink SA",
41          "org_name": "Starlink Group",
42          "qual_level": "Masters"
43      },
44      {
45          "id": 4,
46          "name": "Elijah",
47          "surname": "Dawson",
48          "birthdate": "1983-07-11T22:00:00.000Z",
49          "employee_number": 3,
50          "marital_status": "Married",
51          "post_code": 1492,
52          "address_1": "9 Moonwalk street",
53          "address_2": "Pretoria",
54          "contact_no": "0834158243",
```

2. **Request URL:** https://starlink-employees.herokuapp.com/employees/sort
   Body:

```
{
    "selectedSortFields":["name"],
    "selectedSortOrder":"Ascending"
}
```

Response:

```
1   [
2       {
3           "id": 3,
4           "name": "Amelia",
5           "surname": "Spellwood",
6           "birthdate": "1997-08-28T00:00:00.000Z",
7           "employee_number": 2,
8           "marital_status": "Married",
9           "post_code": 1965,
10          "address_1": "32 Avenue",
11          "address_2": "Fairland",
12          "contact_no": "0764238472",
13          "country_name": "South Africa",
14          "total_salary": "57900",
15          "reporting_line": 1,
16          "role_name": "Employee",
17          "dep_name": "Infrastructure",
18          "div_name": "IT",
19          "comp_name": "Starlink SA",
20          "org_name": "Starlink Group",
21          "qual_level": "Masters"
22      },
23      {
24          "id": 1,
25          "name": "Benjamin",
26          "surname": "McAthur",
27          "birthdate": "1988-07-22T00:00:00.000Z",
28          "employee_number": 1,
29          "marital_status": "Married",
30          "post_code": 1456,
31          "address_1": "12 Folksbery",
32          "address_2": "Pretoria",
33          "contact_no": "0835268546",
34          "country_name": "South Africa",
35          "total_salary": "66000",
36          "reporting_line": null,
37          "role_name": "CEO",
38          "dep_name": "Infrastructure",
39          "div_name": "IT",
40          "comp_name": "Starlink SA",
41          "org_name": "Starlink Group",
42          "qual_level": "PhD"
43      },
44      {
45          "id": 5,
46          "name": "Byron",
47          "surname": "Tomkinson",
48          "birthdate": "1999-07-03T00:00:00.000Z",
49          "employee_number": 5,
50          "marital_status": "Single",
51          "post_code": 1692
```

7. SECURITY

The security protocols are to be designed in following modules with user access control methods

8. ARCHITECTURE

3-tier architecture

The Employees App is deployed on a 3-tier architecture using the following technologies: ReactJS, ExpressJS, NodeJS and PostgreSQL.
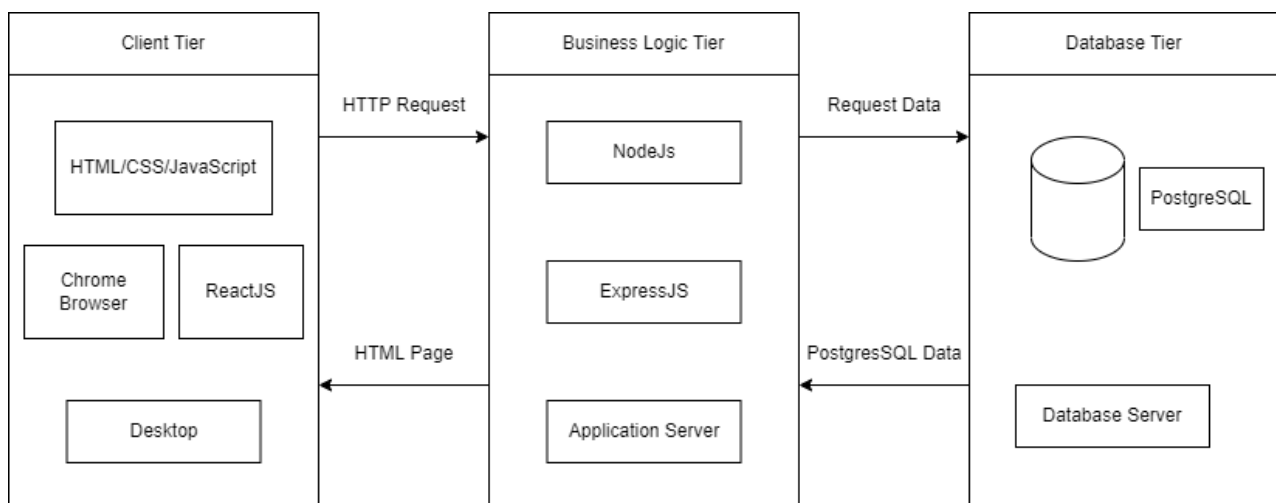

Figure 2: Architecture diagram of the 3-tier architecture

9. USE CASE DIAGRAMS

The use case diagram in figure 3 shows how the user can perform the actions "View employees", "Sort employees", "Filter employees", "View Salary group by Role" and "View Salary grouped by Department". These actions are handed through the database which is controlled by the data base administrator (DB admin)

Figure 3: Use case diagram