



**AMERICAN INTERNATIONAL UNIVERSITY–BANGLADESH (AIUB)**

**DEPARTMENT OF FACULTY OF BUSINESS ADMINISTRATION**

**BUSINESS INTELLIGENCE AND DECISION SUPPORT SYSTEMS**

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**REPORT ON**

***BI Final Exam Project***

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## Introduction:

The Power BI is a powerful tool which helps us to present data in a unique way to analysis, visualize and share information. It connects various data sources to create an interactive dashboard. It helps to make business decisions based on data more profoundly and better. In this project we worked with HR data to make an Analytic dashboard from the provided information, based on which the HR decision can be made.

## Data Preparation:

The dataset was already provided by our course teacher. The data was transformed and cleaned. For example, the data types were checked and altered as needed.

The following 10 questions were addressed using Power BI for the project:

### 1. How many people are in each job?

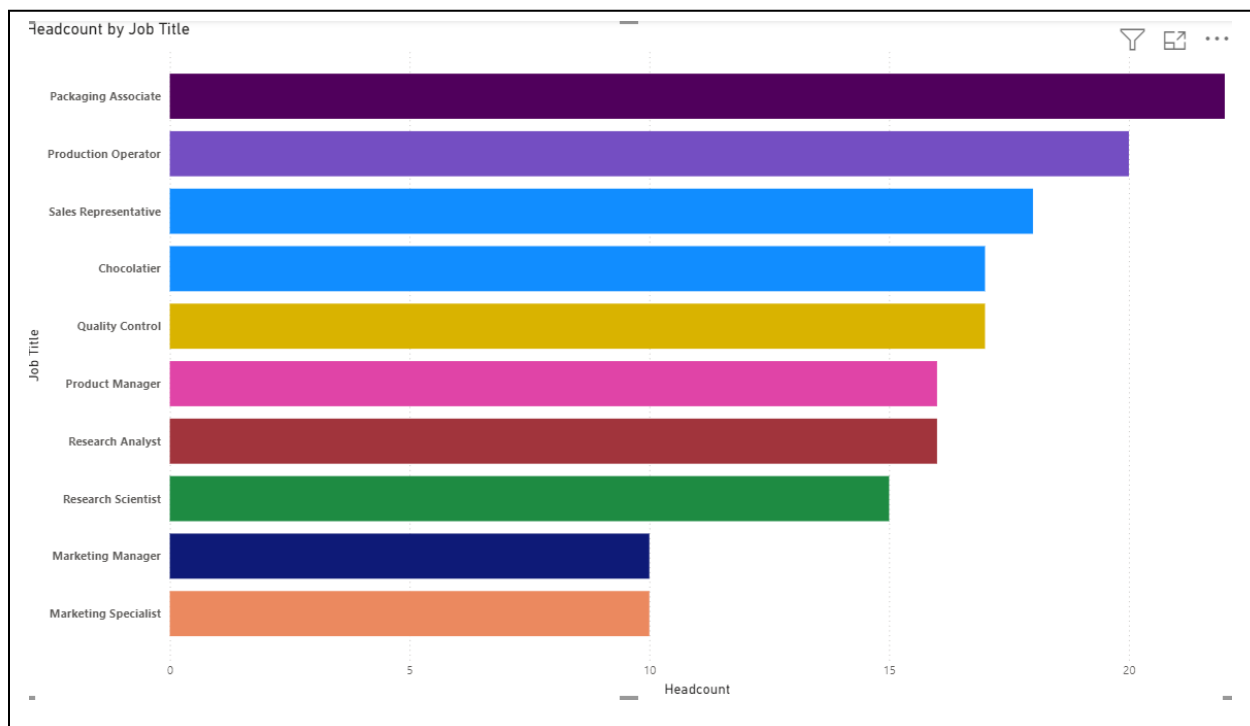
**Ans:**

For this I created a new measure variable named “Headcount”.

Headcount = COUNTROWS(data)

this means that rows count certifies the number of people working. The number of peoples’ information filled the database, so it felt logical to make this new variable.

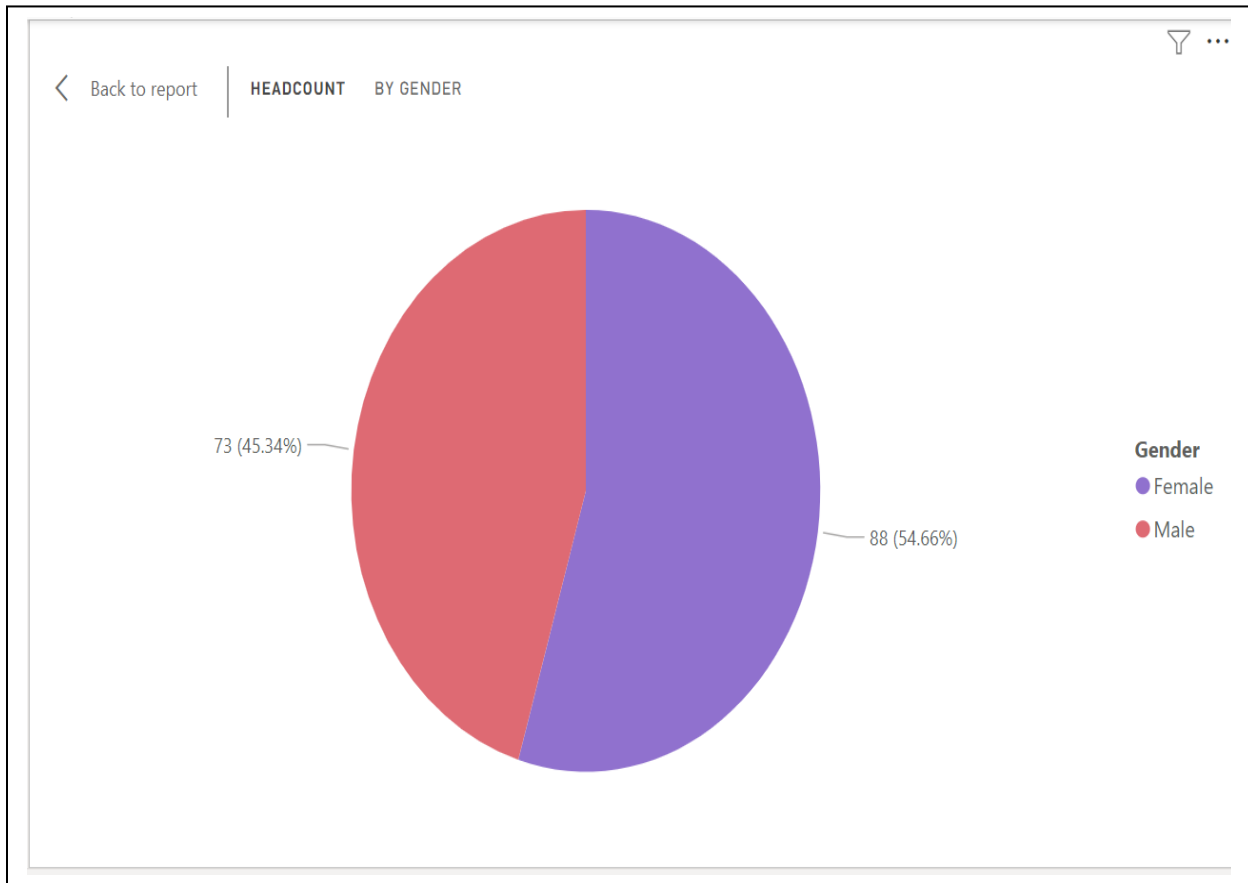
Then, stacked bar chart diagram is used where Jobtitle is at Y axis and Headcount at X axis. Jobtitle at Y axis because it will show the names of the job vertically where the numbers of workers at horizontally.



## 2. Gender Breakdown of the staff

Ans:

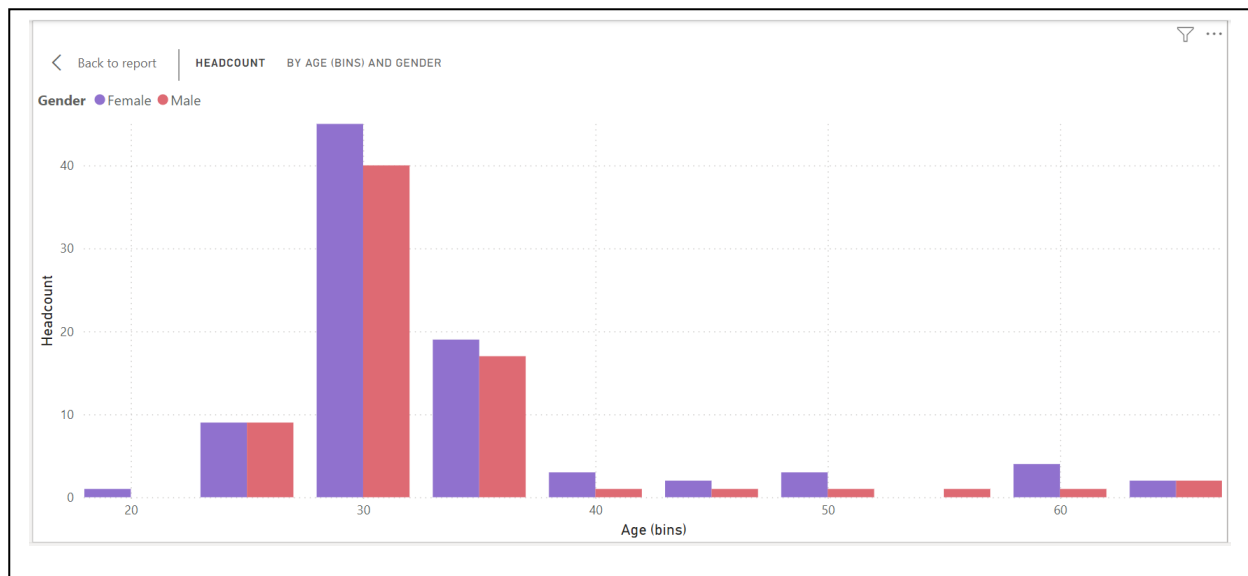
The “Headcount” variable was used again. This time it was used with “Gender” variable. The Pie diagram was used to represent it. The “Gender” variable was put in Legend field and at the value field was “Headcount”. The reason behind is that the headcount gives the number of worker, and the gender provides the tag whether it is male or female.



### 3. Age Spread of the Staff

**Ans:**

A new group named “Age(bins)” was created for this section. It is a section made from “Age” variable with the bin size of 5. The stacked column chart diagram was used where at X axis is Age(bins), Y axis is “Headcount” and “Gender” was used as Legend. So, the number of workers throughout the age is shown and gender is used to show the male and female tag.



### 4. Which job pays more?

**Ans:**

A new variable named “Max Salary” is created for this purpose.

Max Salary = MAX(data[Salary])

Table diagram is used to represent the desired visualization where two columns are used- one being the “JobTitle” and the other is “Max Salary”. It shows the job names with the highest salary with ascending order.

Job Title	Max Salary
Product Manager	85000
Research Scientist	79300
Marketing Manager	74900
Marketing Specialist	63600
Research Analyst	60000
Chocolatier	54900
Sales Representative	49800
Quality Control	45000
Production Operator	39800
Packaging Associate	36200

## 5. Top earners in each job?

Ans:

Table diagram is used here with columns named- “Emp ID”, “Job Title”, “Name”, “Max Salary”. A filter was used where “Emp ID” is taking first employees of each job. The filter option of the page is untapped then the “Emp ID” selected where there were options called filtering while basic filtering by default selected. Changing it to “Top” and to BY value section again “Emp ID” given where “First emp” auto selected. The flow as follows:

Filter -> Emp ID -> filtering type= TOP -> size 10 --> by value= First Emp

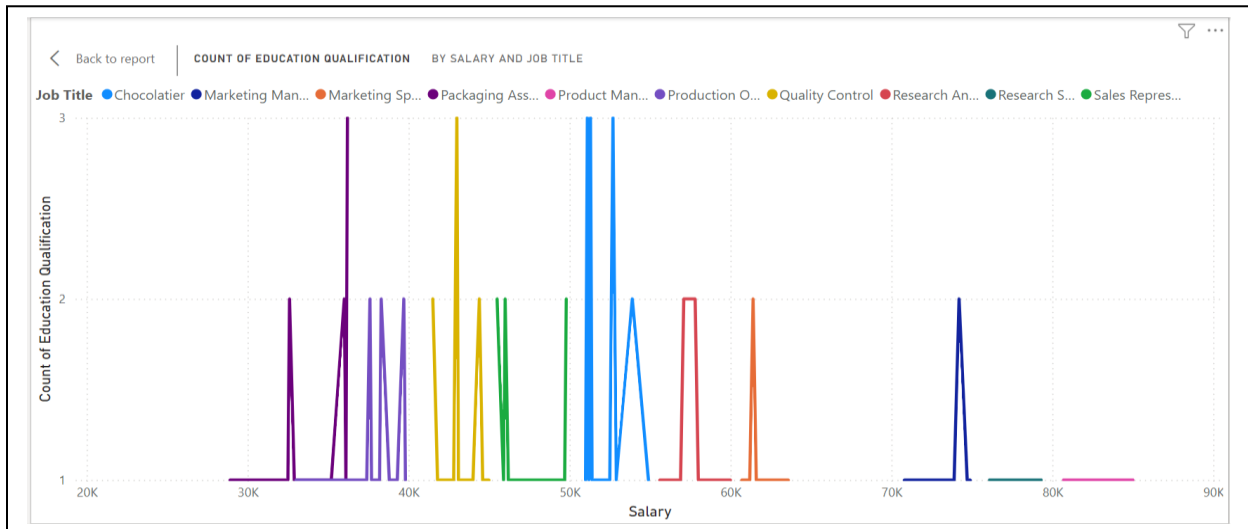
This will show all the top earners of each job.

Name	Job Title	Max Salary
Michael Walkson	Product Manager	82300
Siya Sharma	Research Scientist	76900
Krish Rawat	Marketing Manager	71100
Kiaan Shah	Research Analyst	57100
Anaya Agarwal	Chocolatier	52900
Kiara Bhatia	Sales Representative	48100
Kabir Trivedi	Sales Representative	46400
Reyansh Rana	Quality Control	44000
Avani Iyer	Production Operator	37400
Eltin John	Packaging Associate	36000

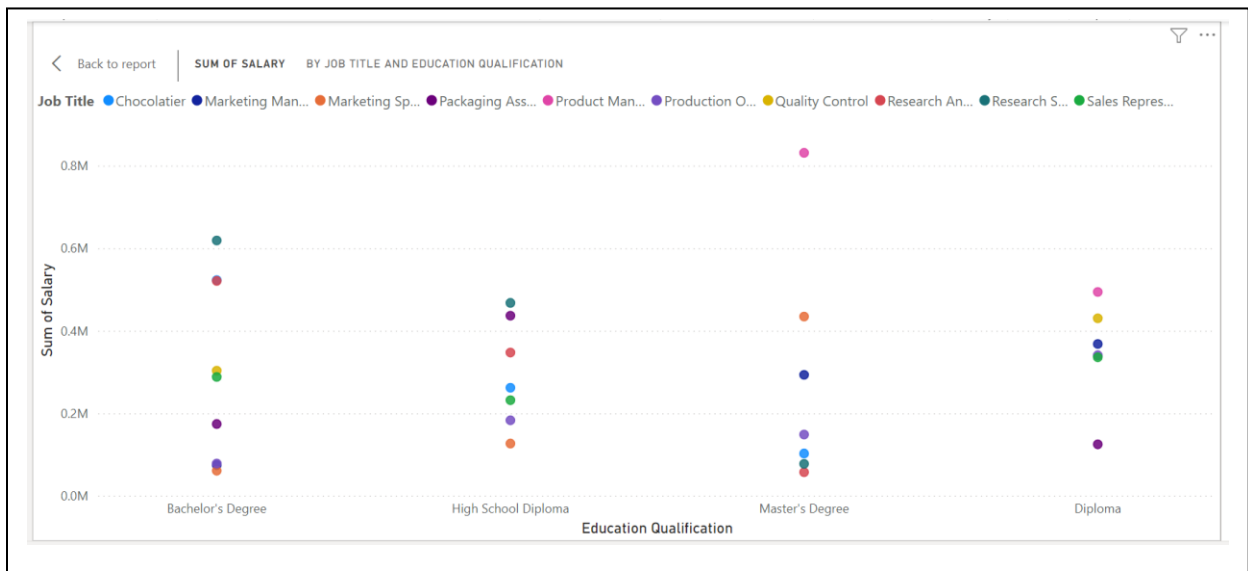
## 6. Qualification vs Salary

Ans:

Line chart is selected for this representation where at X axis is “Salary” and at Y axis is “Education Qualification” which auto changes, counts the number of degrees and “Job Title” is used for Legend. This specific configuration will show salary ranges varying number of degrees across different jobs.



Another approach is taken using scatter plot diagram where at X axis is “Education Qualification” and at Y axis is “sum of Salary” also “Job Title” is used for Legend. Here it looks like,



## 7. Staff growth trends over time

**Ans:**

A new variable named “Cumulative Headcount” was created to have the growth rate of the staffs.  
The new measure follows:

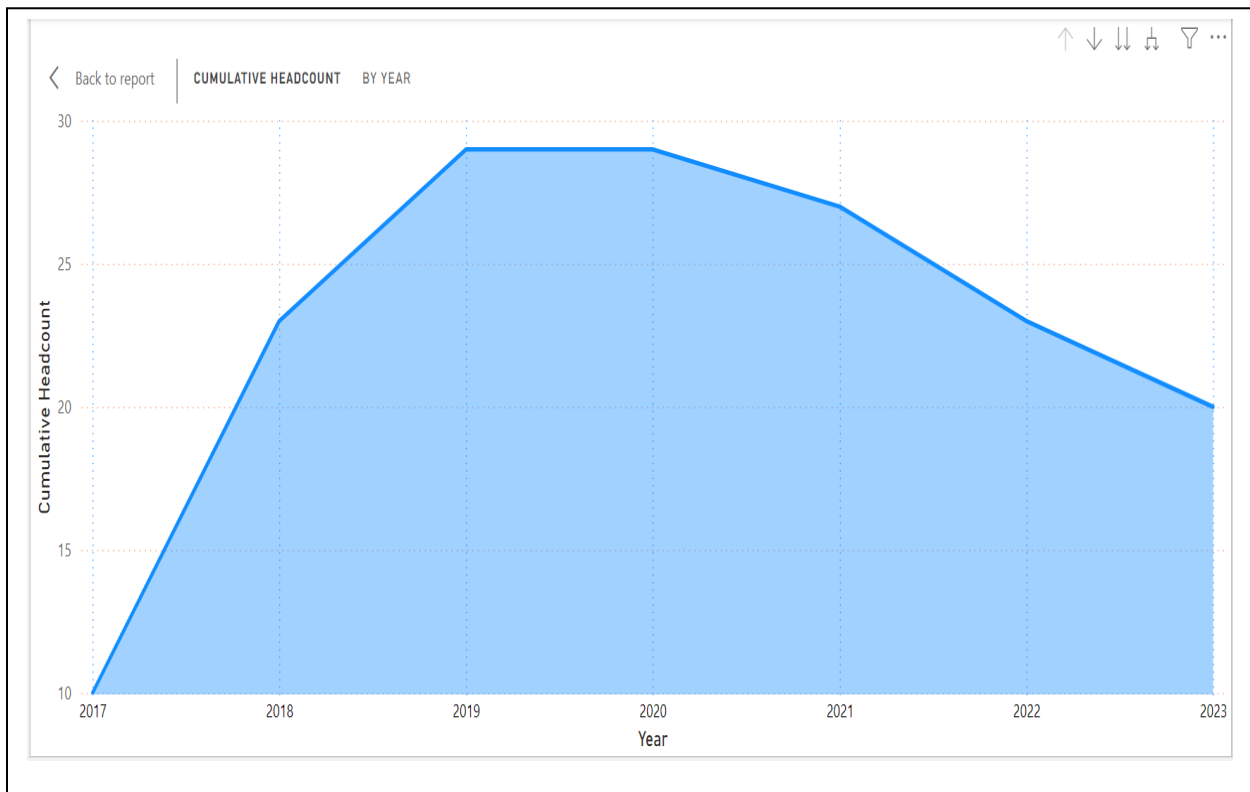
1 Cumulative Headcount =

2 var currentdate = LASTDATE(data[Date of Join])

3 return

4 CALCULATE([Headcount] (data[Date of Join]), data[Date of Join] <= currentdate)

After the new variable was created, Area chart diagram is selected with “Date of joining” being at the X axis and “Cumulative Headcount” at Y axis. This representation shows the growth rate of the staff over total time.



## 8. Employee filter by starting letter

Ans:

The transformation of the database is needed so the option was selected. Then, there is a option called “add column” as the new variable is needed. In that option, another option called “Extract” where selecting “First Character” will ask character count-here 1 will be enough as the needed character is only first character. Saving this will create new variable called “First character”  
Now, slicer diagram is used to have the option to select the character as per need where only variable is used “First character”. But to have the full potential view, the table diagram is perfect where columns named- Name, Emp ID, First character, Job title, sum salary or more can be selected to see. Here is the visualization:

First Characters, Name

^ ☐ A

- ☐ A R Rahadude
- ☐ Aanya Kapoor
- ☐ Aanya Singh
- ☐ Aanya Trivedi
- ☐ Aarav Shah
- ☐ Aarav Verma
- ☐ Aarush Mishra
- ☐ Aarush Verma
- ☐ Advait Kapoor
- ☐ Advait Kumar
- ☐ Advait Sharma
- ☐ Agnes Collicott
- ☐ Allene Gobbet

Name	First Characters	Job Title	Emp ID	Sum of Salary	Education Qualification
A R Rahadude	A	Packaging Associate	AC0079	36000	Bachelor's Degree
Aanya Kapoor	A	Research Scientist	AC0097	78900	Bachelor's Degree
Aanya Singh	A	Research Scientist	AC0115	77100	High School Diploma
Aanya Singh	A	Research Scientist	AC0151	78200	High School Diploma
Aanya Trivedi	A	Research Scientist	AC0133	79200	High School Diploma
Aarav Shah	A	Product Manager	AC0103	82800	Master's Degree
Aarav Verma	A	Product Manager	AC0121	85000	Master's Degree
Aarush Mishra	A	Production Operator	AC0110	35500	Master's Degree
Aarush Verma	A	Production Operator	AC0128	37600	Master's Degree
Advait Kapoor	A	Packaging Associate	AC0145	32600	Bachelor's Degree
Advait Kumar	A	Packaging Associate	AC0127	33100	Bachelor's Degree
Advait Sharma	A	Packaging Associate	AC0109	36100	Bachelor's Degree
Agnes Collicott	A	Marketing Manager	AC0075	74800	Diploma
Allene Gobbet	A	Packaging Associate	AC0054	29000	Diploma
Almond Joy	A	Marketing Specialist	AC0084	61400	Master's Degree
Ambros Murthwaite	A	Product Manager	AC0052	84800	Master's Degree
Anaya Agarwal	A	Chocolatier	AC0140	51100	High School Diploma
Anaya Agarwal	A	Chocolatier	AC0158	52900	High School Diploma
Anaya Choudhary	A	Chocolatier	AC0122	52700	High School Diploma



## 9. Leave balance analysis

Ans:

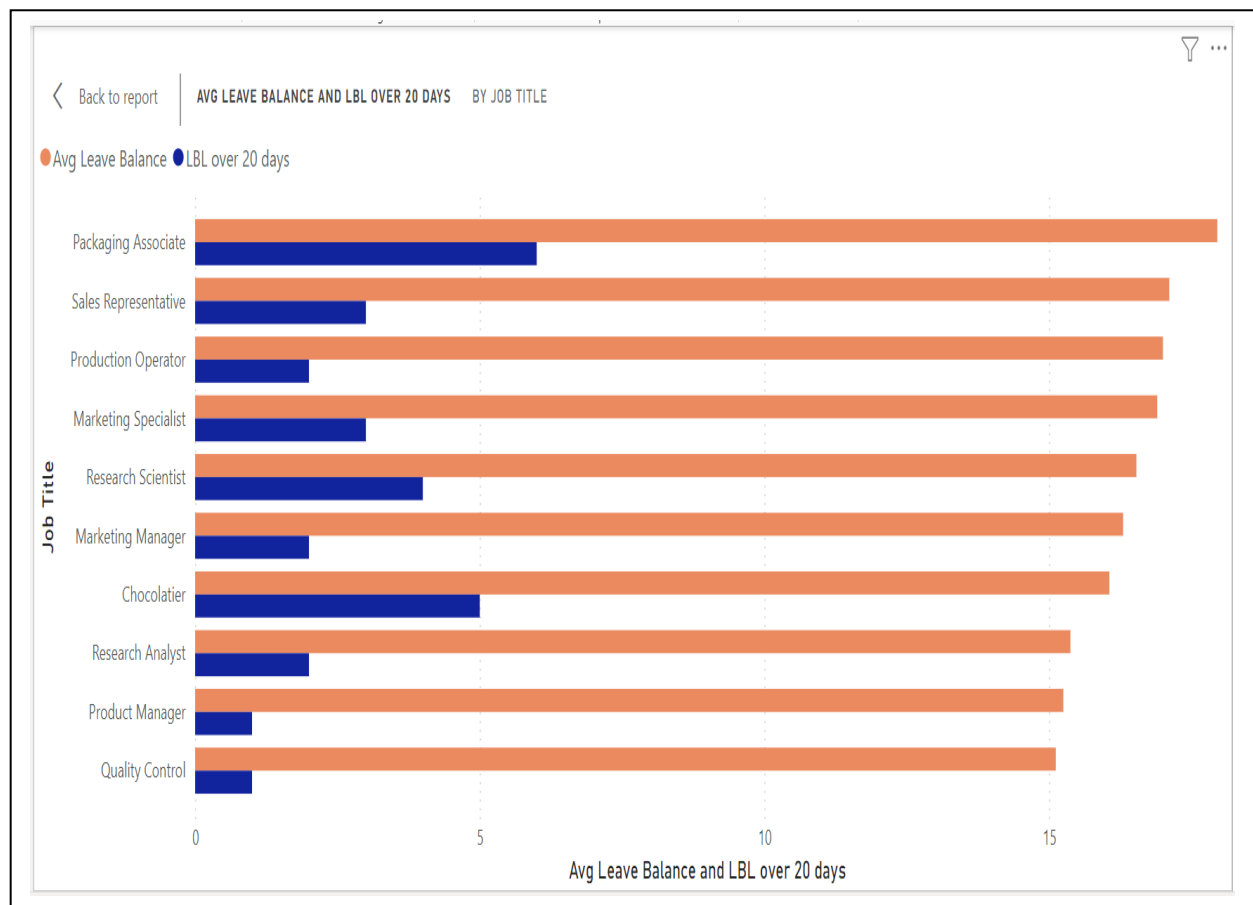
Two new variables were used to create this section of visualization. First is,

→ Avg Leave Balance = `AVERAGE(data[Leave Balance])`

→ LBL over 20 days = `CALCULATE([Headcount],data[Leave Balance]>20)`

These variables enable the insights to analyze the leave balance. “Avg leave balance” as the name suggests, it is the average of the main variable “Leave Balance”. “LBL over 20 days” calculates the leave balance over 20 days.

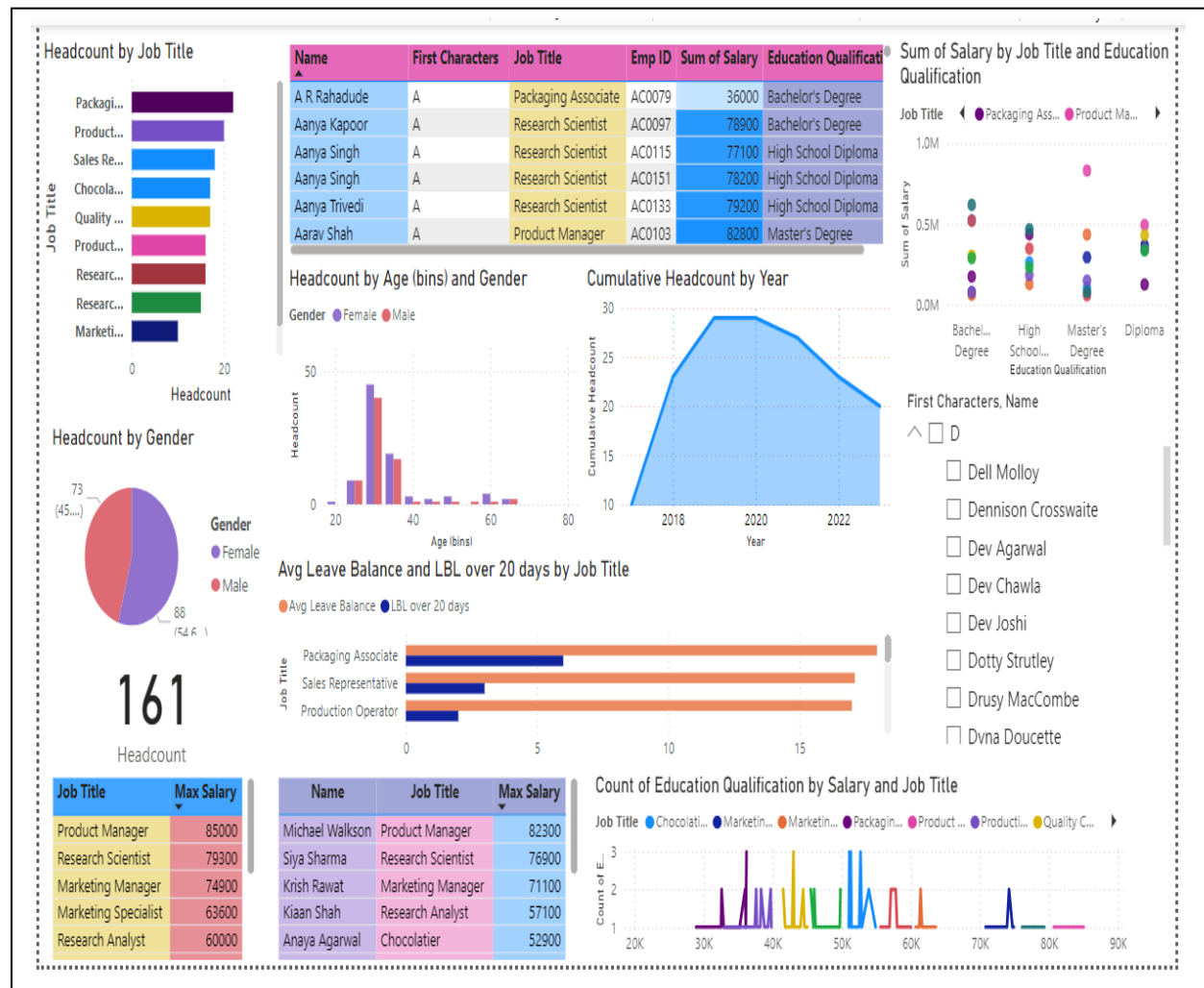
Clustered bar chart diagram is selected for this where both “Avg Leave Balance” and “LBL over 20 days” being at the X axis and “Job Title” being at the Y axis. This shows the number of average leave balance and leave balance over 20 days for each job to have a wholistic view of leave balance idea throughout the jobs.



## 10. Quick HR Dashboard

Ans:

Here is all the diagrams are combined into one dashboard to aid HR analysis.



## Conclusion:

This project has broadened the knowledge I had with Power BI. Now I can transform the data, create new measurements as per my needs and also variables. The usage of Filters is very impactful which varies from user to user. With these analytical insights I can help any organization to make business as well as important decisions based on data.