Al Imam Mohammad Ibn Saud Islamic University
College of Computer and Information Sciences

Information Systems Department

Course Title:	*Business intelligence*
Course Code:	*IS 442*
Course Instructor:	*Dr. Albatoul Althenayan and Dr. Muhammed Khaled*
Assignment:	*Group project*
Semester:	*3rd semester 2024-25*
Submission Date:	*20-5-2025*
Marks:	*20*

Instructions:

Project Title	Salary Prediction		
Section no.	171	**Group no.**	

1. Submission date is on **20-5-2025** via IMAMU LMS Blackboard before **11:59 p.m**.
2. Any attempt to cheat from any of your classmates or form the Internet the whole assignment/project will be marked as Zero. Be aware that Blackboard uses plagiarism check tool! (Read and sign Plagiarism Declaration)
3. There will be no extension in the submission deadline.
4. No hand writing is accepted.
5. Use this cover page.
6. Submit **soft copy** (via Blackboard) use **Word format and PDF file.**

Students Names	Students IDs	Read and accept (Plagiarism Declaration)	Marks out of 20
Nawaf Essa Alharbi		Accept	
Khalid Obaid Alshamrani		Accept	
Talal Mohammed Alasmari		Accpet	
Mohammed Alsulaimi		Accept	
Sultan Alshehri		Accept	

Part A (Plagiarism Declaration):

I declare that the proposed document is my own work and I own the copy right of it with no copy rights violation or plagiarism from other resources

Project Evaluation's Sheet

Criteria	Deserved points	Criteria' Points
Report	**15**	
• **Choosing Dataset**		1
• **Introduction of the Project (4 marks)**		
1. What goal do you want to achieve in this project?		1
2. What type of problem or are you targeting? Or what are the business questions you want to answer?		1
3. Why did you choose this data?		0.5
4. what the metrices and indicators you will measure?		1
5. What the expected outcomes and impacts?		0.5
• **Method (2 marks):**		
1. the steps you take to collect, clean, transform, and integrate it.		1
2. document any assumptions, limitations		1
• **Dashboard (3 marks):**		
1. Explain scope of application of the dashboard and what the indicators that were measured		1
2. Screenshots of your experiment's settings		1
3. Design effective dashboard		1
• **Results (3 marks)**		
1. highlight the key findings, trends, patterns, and anomalies that answer your business questions		1
2. provide solutions and recommendations		1
3. use appropriate charts, graphs, dashboards, and stories to visualize and communicate your data effectively		1
• **Conclusion (2 marks):**		
1. How useful is the final dashboard which is based on the chosen dataset for decision makers (Did it meet your objectives).		1
2. Summarize your main points and tie all this together with a final powerful thought or a few closing lines.		1
• ***Late submission?*** *-1 for each day? (3 days limit)*		-1
SubTotal# 1		**15**

Criteria	Deserved points	Criteria' Points
Presentation	**5**	
• Slides		2.5
• Discussion		2.5
SubTotal# 2		**5**

Introduction

In this project, we apply Business Intelligence techniques using Microsoft Power BI to analyze a real-world dataset related to salaries. Our goal is to explore the relationship between years of experience and the salary that individuals earn. With data visualization and simple analysis, we aim to create an interactive dashboard that presents clear insights about salary trends based on experience. This can be useful for HR professionals, employers, and even job seekers who want to understand how experience affects compensation.

1.1 Goal of our project

The main goal of our project is to discover useful patterns between experience and salary. We want to understand if there is a strong link between the number of years a person has worked and the amount they are paid. Using this information, our goal is to build a dashboard that helps decision-makers make better choices about salaries.

1.2 What type of problem or are you targeting? Or what are the business questions you want to answer?

We are targeting the problem of salary planning and fairness. Our main business question is: Does having more experience always mean getting a higher salary? We also want to know if we can predict salaries for people based on how many years they've worked.

1.3 Why did we choose this data?

We chose this dataset because it's clean, simple, and easy to understand. It focuses on two important variables—Years of Experience and Salary—which are very common in real-life HR scenarios. This makes it a great dataset to practice business intelligence skills using Power BI.

1.4 What the metrices and indicators did we measure?

The key indicators we will focus on are:

2 Years of Experience

3 Salary

4 Average Salary

5 Predicted Salary using a trend line

1.5 Expected outcomes and impacts?

We expect to create a clear and useful dashboard that shows how salary increases as experience increases. This can help companies with salary planning and allow job seekers to have better expectations. It also shows how BI tools like Power BI can turn simple data into meaningful insights.

Method

2.1 Steps we took to collect, clean, transform, and integrate it

We started by collecting the dataset from a reliable source in CSV format. The dataset contains two columns: “Years of Experience” and “Salary.” After importing the file into Power BI, we checked for any missing or incorrect values — luckily, the data was already clean and didn’t require a lot of cleaning.
We then renamed the columns for clarity and changed the data types to ensure they were correctly recognized as numerical values. Next, we created new visuals and added

a trendline to show the relationship between experience and salary. We also created a calculated field to display predicted salaries using a linear trend.

2.2 Any assumptions, limitations that are documented

One of the assumptions we made is that salary increases consistently with experience, which may not always be true in every industry. Also, the dataset only contains two variables, so it doesn't account for other factors like education level, job role, location, or company size that could also affect salary.
The dataset is quite small, so while it's great for learning and simple analysis, it might not represent the full picture of real-world salary trends. Still, it's enough to show how Business Intelligence tools can be used to explore patterns and support decisions.

Dashboard

3.1 The Scope of application of the dashboard

Providing insights for students who want to know which job titles or careers in-demand facing worker shortages often reflected by a higher annual salary for these job titles and to know the market trend and direction, which can be beneficial not only for students but also for educational institutions and companies.

3.2 The type of database that was used

A structured tabular format, which includes clearly defined columns for age, gender, education level, years of experience, Salary with 376 rows.

3.3 The indicators that were measured

- Total Number of Employees
- Average Salary
- Maximum Salary
- Average Age
- Average Salary by Education Level
- Average Salary by Gender
- Average Salary by Years of Experience
- Top 5 Job Titles by Average Salary
- Job Title Count by Gender

3.4 The type visuals that were used for each indicator.

In figure 2: the type of visualization that was used is (Card)
In figure 3: the type of visualization that was used is (Line chart)
In figure 4: the type of visualization that was used is (Clustered Column chart)
In figure 5: the type of visualization that was used is (Pie chart)
In figure 6: the type of visualization that was used is (Clustered Bar chart)
In figure 7: the type of visualization that was used is (Clustered Column chart)

3.5 A screenshot of the dashboard and a link to download the panel.

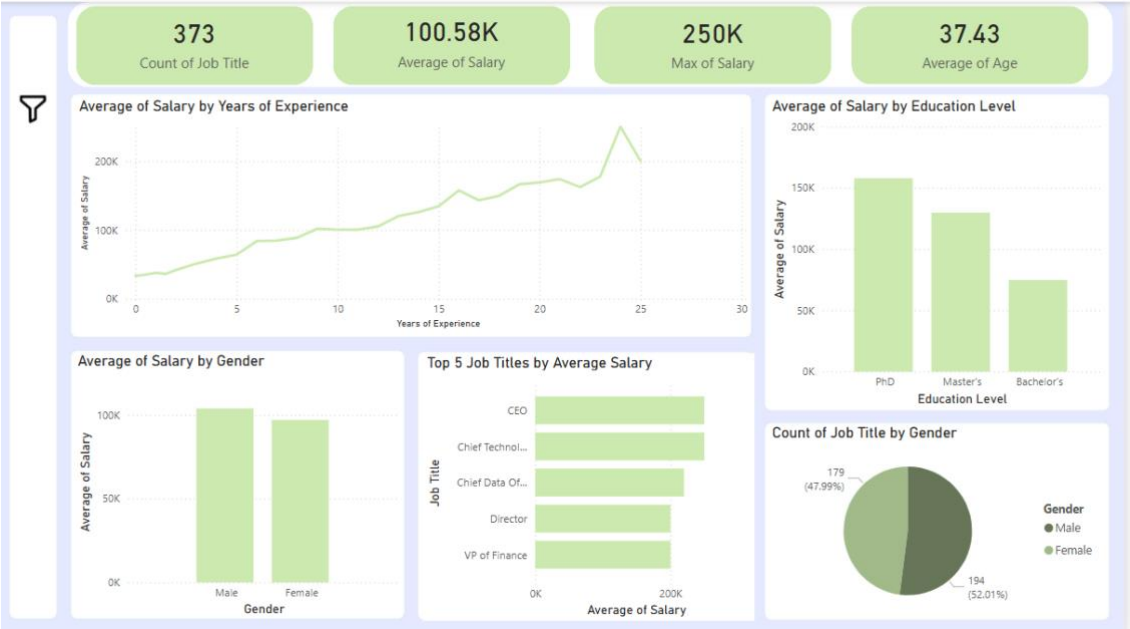

Figure 1: Dashboard

Figure 2: Key Workforce Metrics

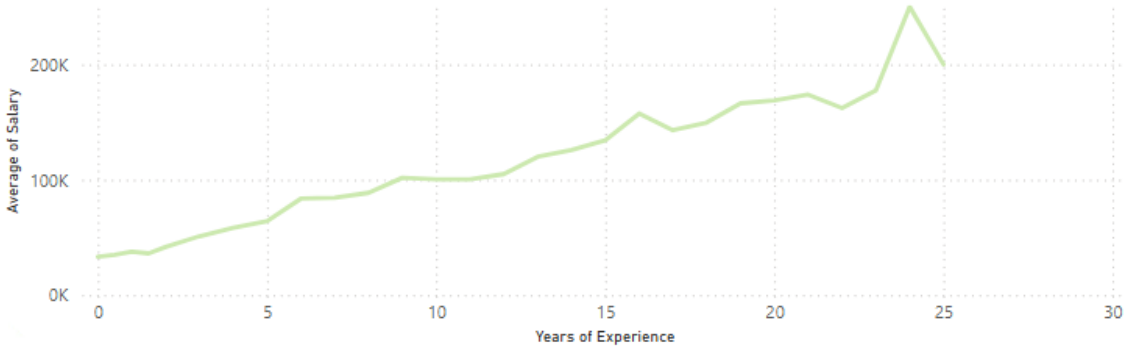

Figure 3: Average Salary by Years of Experience

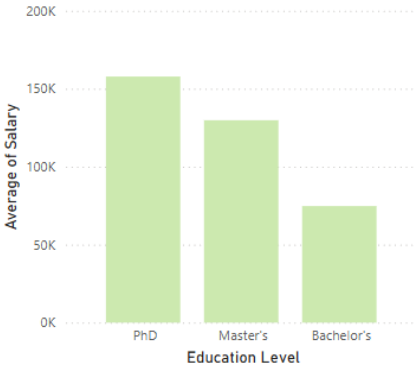

Figure 4: Average Salary by Education Level

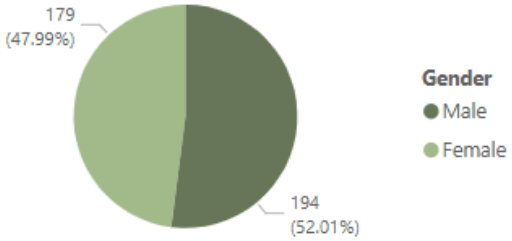

Figure 5 Job Title Count by Gender

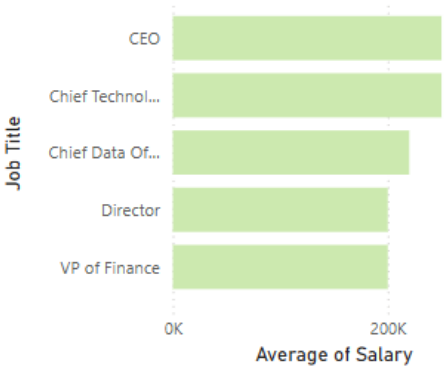

Figure 6: Top 5 Job Titles by Average Salary

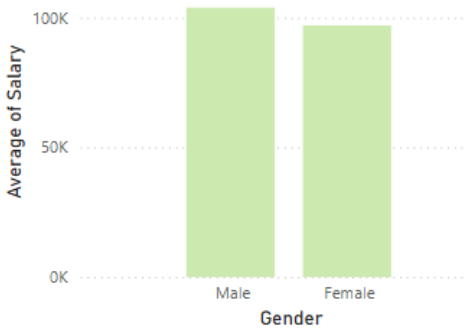

Figure 7: Average Salary by Gender

The link to download the Dashboard:
Click here

Results

After finishing our work on the dashboard, we noticed some interesting things:

- Experience Matters: We clearly saw that the more years of experience someone has, the higher their salary usually is. This was easy to spot using the line chart we made.
- Some Surprises: While most people with more experience earned more, there were a few cases where people with less experience earned higher salaries. This made us think that there are probably other things—like skills or job roles—that also affect salary but weren't part of our data.
- Education Makes a Difference: We also found that people with higher education tend to get better salaries, though it wasn't a huge difference in our case.
- Salary and Gender: There was a small gap between male and female salaries. It wasn't very big, but it's something worth looking into more seriously.
- Top Paying Jobs: We also discovered the top five highest-paying jobs, which can be helpful for students who are planning their future careers.
- Workforce Overview: The dashboard gave a nice overview of the employees, like their average age, salary ranges, and gender balance.

Solutions and recommendations:

1. Better Salary Planning: Companies can use these results to make fair salary decisions based on experience.
2. Career Advice: Students can see which jobs pay the most and plan their careers accordingly.
3. Review Salary Gaps: Companies can check for unfair salary differences, especially between male and female employees.

Conclusion

The dashboard achieved our goal. It gave useful and clear information about how salary relates to experience, education, and other factors. It helps managers, students, and job seekers make better decisions.
The dashboard is a helpful tool because it makes data easy to understand. It shows how Power BI can turn simple data into valuable insights for companies and individuals.