Inequality of Gender Employment in Indonesia

Capstone Proposal

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Problem Statement

Work is an activity in which everyone has the right of it to fulfill their needs. Based on data from the **BPS RI**, the working-age population is the population aged 15 years or more. At that age, generally, a person is already earning their living for the necessities of life. However, this contradicts the high unemployment rate. According to **BPS RI** data, **Indonesia's unemployment rate** is **5.83 percent** of the entire population of Indonesia as of **February 2022**. The unemployment rate is dominated by **women**.
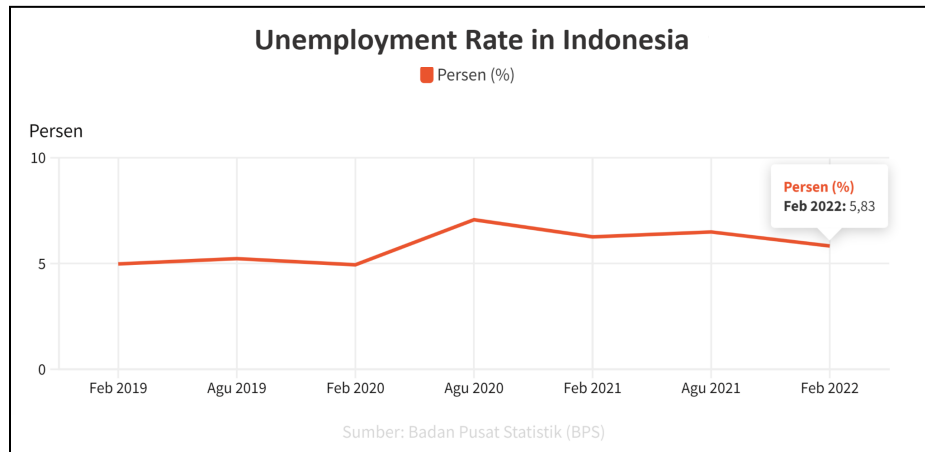

Gambar 1. Unemployment rate in Indonesia, BPS RI 2019-2021

The results of the **2017 BPS RI** data stated that relatively few women in Indonesia work in the formal sector. The results show that only **38.63 percent** of **Indonesian working-age women** are employed in **formal jobs**. This figure is lower than the world (average) **female labor force participation level**, which was **49 percent** in 2017 (data from the World Bank). However, compared to Indonesian men, the participation rate of women in the workforce is still **relatively low**. Around **45.66 percent of Indonesian men** (of working age) work in the **formal sector**.

Gender / Residence	Main Job Status		Total
	Formal	Informal	
Urban			
Female	53.16%	46.84%	100%
Male	59.83%	40.17%	100%
Rural			
Female	22.39%	77.61%	100%
Male	29.78%	70.22%	100%
Urban + Rural			
Female	38.63%	61.37%	100%
Male	45.66%	54.34%	100%

Tabel 1. Percentage of working-age population working in the formal and informal sectors, BPS RI, 2017.

Reinforced by the **McKinsey & Company** report, the ratio of women working in corporations is still lower than men. This condition applies to all positions, from the initial level to the executive manager (C-Suite). The higher the position, the smaller the proportion of women occupying the position. By **early 2020, 47% of women** were in **entry-level positions**. Meanwhile, **38% of women** hold positions as **managers**. Only **22% of women** are lined up as **executive managers**. This figure is at the same time the lowest compared to other positions.
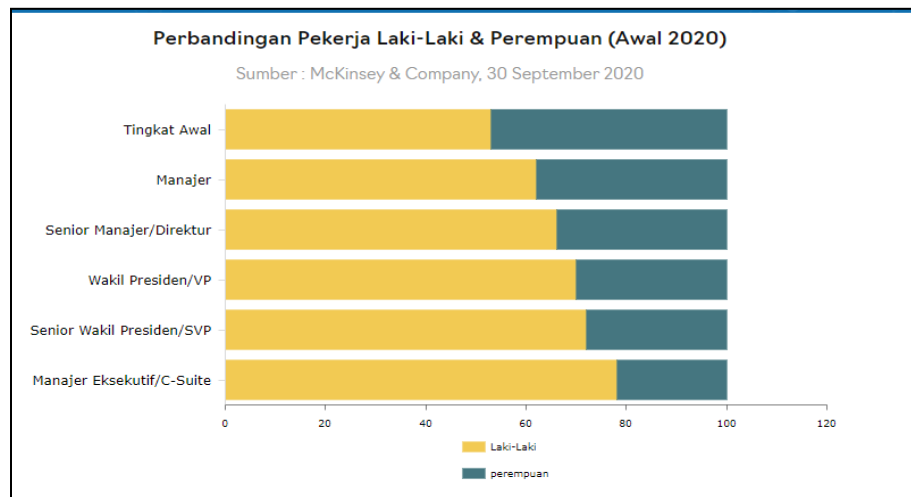
Gambar 2. Comparison of male and female workers, McKinsey & Company, 2020

Several factors cause this, including (1) **Tradition/culture**; traditional Indonesian women are more likely (than men) to take care of the household, especially after giving birth to children, (2) **Gender inequality**; Indonesian women tend to work in the informal sector (more than men). There are many examples of informal women workers, for example, working in a garment factory, as housemaids, or opening an informal business at home (e.g., selling their own food). Most of these **informal women workers** are **unpaid** or **earn less** than men for equal work. As mentioned above, working in the informal sector can be risky because informal sector workers usually have **low and unstable incomes**. Moreover, they cannot access essential (health) protection and services. Although the unemployment rate is reported to have **continued to decline** in the past year, the **issue of gender equality** is still an essential issue that government must consider.

With the **broader role of women** in development, opportunities for women to develop their potential today **can be more open**. Supported by the motivation of women to work, study and become entrepreneurs like men without forgetting their nature as a woman are **growing stronger**. The opportunities that are already available need to be supported by the improvement of human resources. Competing in the world of work requires education, experience, and skills. The higher a person's skills, the more valuable time is, so it tends to replace his spare time for work (**Simanjuntak**, 1985).

It is now widely recognized that it is good practice to present statistical data by gender is good practice. Women and men have different societal roles, needs, interests, and access to resources. The national presentation of data is insufficient to reflect these differences (UNFPA, 2014). Discussions on employment become more interesting when viewed from the participation of both men and women in the world of work. The involvement of women in the labor market can describe the level of welfare and empowerment of women. The more women who work, the more women can actualize themselves and the smaller the gap in work participation between women and men in the labor market.

Based on the above problems, an analysis will be made in the form of a **dashboard visualization** regarding the **inequality of women and men** in terms of fulfilling their life needs, namely work. The dashboard visualization will contain two things. The first is our **analysis** of Indonesia's **gap between women's and men's employment**. Then, a **recommendation system** will be made to find the minimum qualifications to apply for a particular job and choose a job based on the skills possessed by the user.

To support the creation of the dashboard visualization above, we used some data for the country of Indonesia from 2002-2018 that were obtained from credible institutions, namely the ***Humanitarian Data Exchange*** (Gender Indicator Data), ***World Bank*** (Gender Statistics Data), and ***Kaggle*** (Job Skills Data). **Gender indicator data** contains comparisons of specific factors for men and women (including education, employment, health, etc.). **Gender statistics data** is complementary data to gender indicator data. **Job skills data** contains the qualifications needed to apply for a job. Although this qualification is a standard Google company qualification, each company's field qualifications are not much different.

Project Goals & Success Metrics

Project Goal

- Find factors influencing gender inequality in the formal employment sector in Indonesia.
- Find solutions to increase the involvement of women to uphold gender equality in work.
- Find trends in the level of employment and unemployment in Indonesia.
- Find indicators that show the inequality in the percentage of women and men.
- Create a recommendation system that can help women find suitable jobs.
- Create short and long-term dashboard visualizations on gender inequality in work

Success Metrics

- Data obtained from credible institutions.
- The data found include indicators that affect gender inequality in employment (level of education, age, health, etc.).
- Can answer and explain the factors influencing labor inequality in Indonesia for men and women.
- Making solutions, especially for women, so that they can work according to their interests and talents and enter the formal work world.
- The recommendation system achieves up to 80 percent accuracy.
- Meet short-term to long-term trends in dashboard visualizations.
    - Short-term trends help create an informative visualization dashboard and what factors make up unemployment in Indonesia for one year.
    - The long-term trend is to expect Indonesia to become a country that no longer looks at gender in the world of work and succeeds in providing solutions for its people in overcoming unemployment in Indonesia.

Product Description

Product/Service

Based on these facts, writers planned to make a product in the form of a dashboard visualization, which is expected to help women find solutions to overcome job equality. As well as a recommendation system to help women find jobs that match their qualifications. The expected benefits of this dashboard include (1) Comparing the required qualifications and analyzing the causes of the gap between men and women in the world of work, (2) Increasing productivity and work skills needed in today's industry, and eliminating the patriarchal view that women are better off working in the informal sector.

To support the creation of dashboard visualizations, writers used Google Data Studio as software that helps visualize data. With this software, visualizations can be viewed interactively and are expected to be more easily understood by the audience. In addition, writers also used Python programming language for data processing. The dominant Python libraries supporting our processing are Pandas, NumPy, Seaborn, Textblob, and NLTK. Considerations for using the Python language because Python is a high-level programming language, which means that this language is almost close to human language. They were also supported by the availability of many open source libraries that help in data processing, analysis, recommendation systems, or visualization.

Before making a dashboard visualization, determining what will be displayed must also be considered. Therefore, a simple mockup of the dashboard contents was created, which will be displayed as follows:

Inequality Gender Employability in Indonesia
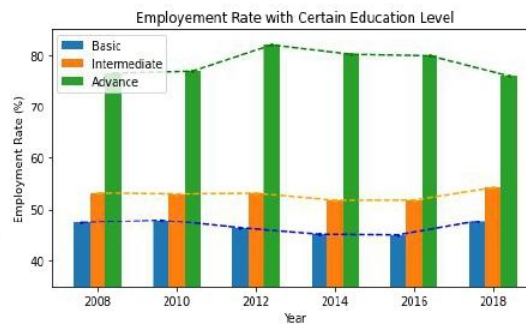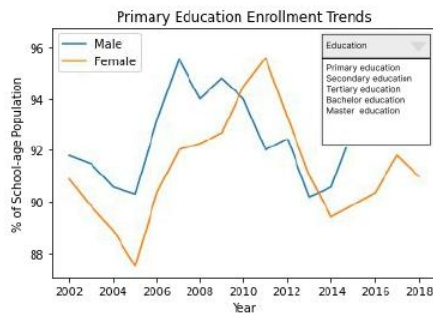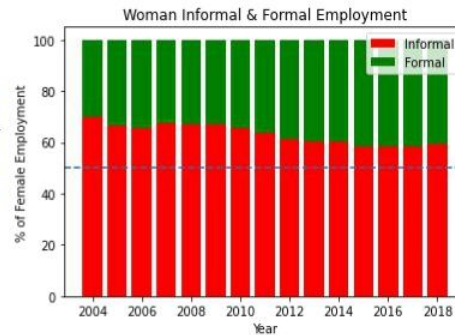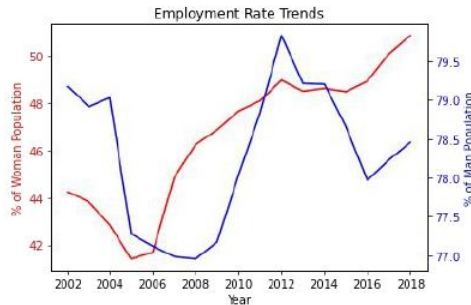
Average Indicator Based on Gender (2002-2018)

	Literacy Rate	Life Expectancy	Human Capital Index	Employment Rate
Female	90.32	71.09	0.51	46.61
Male	95.63	67.13	0.48	78.3
	Age Marriage	Decision Making	Survival Rate	Employment Rate
Female	22.27	10.73	75.85	46.61
Male	26.45	30.99	68.16	78.3
	Harmonized Test Score	Population	Mortality Rate	Employment Rate
Female	405.53	7.97E+07	153.31	46.61
Male	389.84	8.09E+07	206.62	78.3

Applicable Law

Wife must obey husband (1970)

Equal remuneration for male and female

Retirement age for men and women is same (1970)

Woman can get the same job as man (1974)

Discrimination prohibition on employment based on gender (2003)
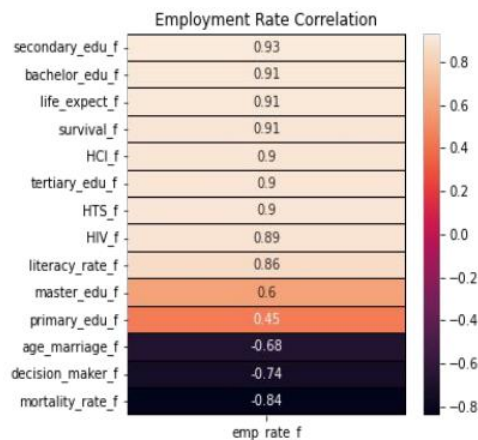
Job Recommendation System

Input skills :	BA degree on computer science field. My interests are in processing and analyzing data. I Have 1 years internship experience in data science. I also have good english skills and I'm a diligent person.
Jobs match :	Product Analyst, Data Science (47% Match)
	Product Analytics Lead, Data Science (46.43% Match)
	Data Analyst, Product Trust and Safety (40.41% Match)
	People Operations Business Intelligence Analyst (40% Match)

Target User

Target Audience

In the problems described previously, the expected target is in the form of a dashboard regarding the factors that affect the low employability of women compared to men. The writers expect that this dashboard can be helpful for

1. **Women's society**

    With this dashboard, it is likely that the female community will be able to find out the factors that affect employment inequality between men and women. So that women's communities can identify their potential in the formal employment sector and compete with male workers to create gender equality to eradicate unemployment.

2. **Employment provider**

    Employment providers in question are private and non-private companies. With this dashboard, the writers expect entrepreneurs can consider that the presence of female workers is not an obstacle to the company's progress. With adequate education and abilities, women are believed to work well just like men with the same background.

3. **Pemerintah**

    The government also upholds equal employment opportunities for both male and female residents. The writers expect that with this dashboard, the government can consider new policies in the context of providing infrastructure in the form of training and special recruitment for women.

Potential Difficulties

Technical Difficulties

1. difficult to get valid data regarding job inequality based on gender in Indonesia. Data is the most valuable commodity for a data analyst in creating a product/dashboard.
2. Additional data is needed from various database sources to create a more comprehensive dashboard to provide information to data users.
3. There are challenges to dealing with software errors or incomplete datasets.
4. Limitations of knowledge in the use of Google Data Studio software.
5. Work with individuals with no programming background.

Solutions:
1. Reach credible institutions in data search so dashboard results can be adjusted using valid data and according to facts in the field.
2. Combining incomplete data with third-party data.
3. Store data in a cloud database and use a modern coding environment so all group members can access and minimize obstacles due to device damage.
4. Conduct further self-study regarding the use of Google data studio.
5. Help each other's deficiencies in the team.

Non-Technical Difficulties

1. There are challenges in finding ideas in the project creation process (due to missing or lacking data) or the possibility of changing strategies during the project process.
2. Projects carried out online make it difficult to communicate optimally, plus time adjustments between individual teams.
3. There is a challenge in managing time to ensure the project is completed according to the timeline that is only given a small amount of time.

Solutions:
1. Writers need to build good communication in the group through online meetings and group chats to discuss project developments.
2. Determine and make a collective agreement on the schedule of group discussions.
3. Brainstorm together to solve the problems encountered.
4. Create a job desk for each member so that all play an essential role in the project and can complete it optimally.

Detailed Work Plan

Work Division

- Rheza Pramana Putra D - Data Preparation & Cleaning

- Annisa Aulia Rahmani - Product & Goals Planning

- Helmi Muharram - Work Plan Management

- Anggun Pratiwi - Proposal Idea & Problem Statement

- Bryan Tjandra - Data Processing & Recommendation System

Action Plan

Action	Responsible	Priority	Status	Start	End	Notes
Making Proposal	All members	High	Completed	23 May	29 May	
Proposal Revision	All members	High	Completed	30 May	5 June	
Data Cleaning	Rheza	High	Completed	6 June	12 June	
Data Processing	Bryan	High	Completed	13 June	17 June	
Recommendation System	Bryan	High	Completed	18 June	25 June	
Make Powerpoint	All members	High	Completed	26 June	30 June	
Create Dashboard	All members	High	Completed	20 June	3 July	

ACTION PLAN	MAY									JUNE																													JULY		
	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3
Making Proposal	■	■	■	■	■	■	■																																			
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