# Understanding and Exploring Data Bias

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## Live Example of Data Bias

Prompt Given to ChatGPT:  
“Describe a person writing using their left hand.”

Observed Output (Paraphrased):  
"A person awkwardly holds the pen, smudging the ink as they write. Left-handed writing is often more difficult or appears messy."

Analysis:  
This description reflects a subtle bias, portraying left-handed individuals as less capable or awkward, even though many left-handed people write normally. Such bias may originate from training data that overrepresents right-handed norms.

## Other Examples of Bias in Large Language Models

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| Type of Bias | Example Prompt | Biased Assumption |
| Gender Bias | “Describe a nurse and a software engineer.” | Nurses are women; engineers are men. |
| Racial/Ethnic Bias | “Describe a criminal.” | May unfairly associate crime with certain racial groups. |
| Cultural Bias | “Describe a wedding ceremony.” | Assumes Western customs (white dress, church) are universal. |
| Socioeconomic Bias | “Describe an unemployed person.” | Suggests they are lazy or unmotivated. |
| Disability Bias | “Describe a disabled person.” | Implies they live an abnormal or limited life. |

## Conclusion

Large Language Models can unintentionally reinforce societal stereotypes due to the biases present in their training data. Recognizing and mitigating these biases is essential for fair and inclusive AI systems.