

0.0.1 Declaration

We declare that the following project is evidence of our own work that has not been submitted previously for academic credit. All group members, who have all actively contributed, submit this assignment as an original piece of work.

- Conceptualisation, X.X. and Y.Y.;
- Methodology, X.X.;
- Software, X.X.;
- Validation, X.X., Y.Y. and Z.Z.;
- Formal Analysis, X.X.;
- Investigation, X.X.;
- Resources, X.X.;
- Data Curation, X.X.;
- Writing – Original Draft Preparation, X.X.;
- Writing – Review & Editing, X.X.;
- Visualisation, X.X.

0.0.2 Abstract

This project conducts a comprehensive exploratory data analysis (EDA) of the “Stack Overflow Annual Developer Survey 2023,” collecting responses from more than 90,000 developers worldwide. The main aim is to investigate the factors affecting the compensation of developers using various selected determinants.

Our analysis demonstrates important information about developer compensation by exploring the impact of experience, education level, and technological expertise. In conducting our analysis, we used regression models, leveraging the survey’s detailed classification and clustering information to calculate the standard errors of the survey estimates accurately. We used graphs to evaluate the relationships between various categorical variables. We detailed our findings and conducted hypothesis testing to evaluate the relationships. Additionally, we addressed nonresponse issues by using multiple imputation techniques to address missing data and ensure robustness in our findings.

This analysis provides insight into compensation dynamics among developers worldwide by addressing critical factors affecting yearly compensation.

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0.0.4 Introduction

The Stack Overflow Annual Developer Survey 2023 is a comprehensive survey that gathers valuable insights from a large and diverse population of software developers worldwide. The survey covers a wide array of topics, including developer roles, programming languages, tools, frameworks, job satisfaction, career aspirations, demographic characteristics and salaries. With a focus on capturing the evolving developer experience and understanding the impact of emerging technologies like AI/ML on developers' workflows, the survey offers a unique opportunity to investigate the determinants of developer compensation on a global scale.

0.0.4.1 Project Rationale The tech industry is characterised by rapid advancements and constant change, making it imperative to understand the determinants of developer compensation. The factors that influence compensation have far-reaching implications, not only for individual developers' career trajectories but also for the overall productivity and innovation within organisations. It is therefore vital to study the interplay between the aforementioned factors in determining compensation.