

What is the best decision? To be a Software developer or not to be!

Have you ever thought what if I focus on learning a programming language and build my future career around this area? People tell us their different opinion based on their negative or positive experiences. but is that enough to base our decisions on a handful of opinions? The answer is no! specially jobs related to computer and Information Technology has its folks online most of their life all around the world and there have been a lot of data gathered year by year which can be used to deduce meaningful conclusions and answer questions like:

- In which countries or regions Developers are more satisfied?
- Do we have increasing satisfaction year by year or the trend is downward in the world or in my region?
- Is there a meaningful correlation between race or gender and level of satisfaction as a developer?
- How important salary will be in my overall and long-term satisfaction both in general and in a specific country?
- What if I can move to the best place known as developer's heaven country just because I love this field and I want to choose in which country should I end up staying?

Apart from individuals who look for such answers, IT companies also need to evaluate their internal job satisfaction since it has an important impact on the overall operation of an organization. It has been proven that being a small to medium size company or a well established large firm, employee dissatisfaction has direct impacts on profitability and quality of the product or service. Answering questions like

- should we employ developers with university degree or take more from the holders of well known certificates?
- Who will end of being more satisfied with the work condition of our company and our salary? More women or men or gender neutrals?
- Should we focus on hiring from a specific nationality?

On the other hand general job satisfaction in each field of profession around the world or per country will have an overall impact on the trendiness and motivation for further focus and pursuit of new individuals for that area of profession and thus will result in maturity and improvement of the overall field.

The good news is that the data is available. IT developers job satisfactions are measured around the world from different aspects both internally by companies and by online surveys. And this online data is to some extend dependable because developers and IT folks are among the most online people while working. One of the famous platforms to find such analysis is stack overflow where developers refer to it to exchange knowledge and ask for code fixes and solutions related to their work, they become members and share their experiences and besides, they answer surveys.

We have looked at Stack overflow developer's annual surveys for some consecutive years to find out answers to some of the questions we posed.

For almost a decade stack overflow conducts an annual developer survey asking for information ranging from technologies and behaviors to questions that will help them improve their community for all the developers around the world. Looking at these surveys from 2015 to 2020, regardless of the main theme

of each year's survey, job satisfaction level has been always among the questions. Just like personal questions such as gender, level of education, country of origin, continent, company size and so on. These data sets are robust since every year developer participation is round 65.000 to 100.000 from all around the globe.

In this post we analyze these data sets and try to answer the following question?

1. Is there a relationship between size of the firm and employee satisfaction? (Company size Vs satisfaction)
2. Which countries have the most satisfied developers, and which has the least? (Country Vs satisfaction)
3. How satisfied are developers based on their continent? (Continent Vs satisfaction)
4. Does amount of salary affects job satisfaction? (Salary Vs satisfaction)
5. What role the age range play in satisfaction? Can we say as they grow older their level of satisfaction is increased or decreased? (age Vs Satisfaction)
6. Does gender Matter in the level of job satisfaction in this field? (Gender Vs Satisfaction)
7. What is the overall trend of job satisfaction based on the survey year? (Year Vs Satisfaction)

### Company size Vs satisfaction

At figure 1, company size is categorized based on the number of employees and for each category the percentage who voted for any of the ten colors indicating the satisfaction level in the surveys is demonstrated. Larger the size of the colored circles, means a greater number of votes. We can see in general regardless of the size of the company, around 20% of the employees voted for moderate to slightly satisfied. And less than 5% were very satisfied or slightly dissatisfied. Note that the summation of the percentage of all the ten categories are hundred and for each company size if we compare level of satisfaction (looking vertically), we can see similar trend. So one conclusion is, working in larger companies does not mean employees are happier with their jobs.



Figure1. Company size vs job satisfaction

Continent Vs satisfaction

Figure two shows the three major satisfaction categories to give a more high-level overview. Job satisfaction of developers all around the world, in all five continents is above 60% having slightly less developers voted for higher satisfaction in Asia and Africa. Below in figure 3 we can see the results for all the nine satisfaction categories.in figure 3 can see four labels indicating satisfaction (moderately satisfied, slightly satisfied, very satisfied and Extremely satisfied) and four indication dissatisfaction respectively, in figure 2 the summation of these four labels indicates higher or lower satisfaction relatively.

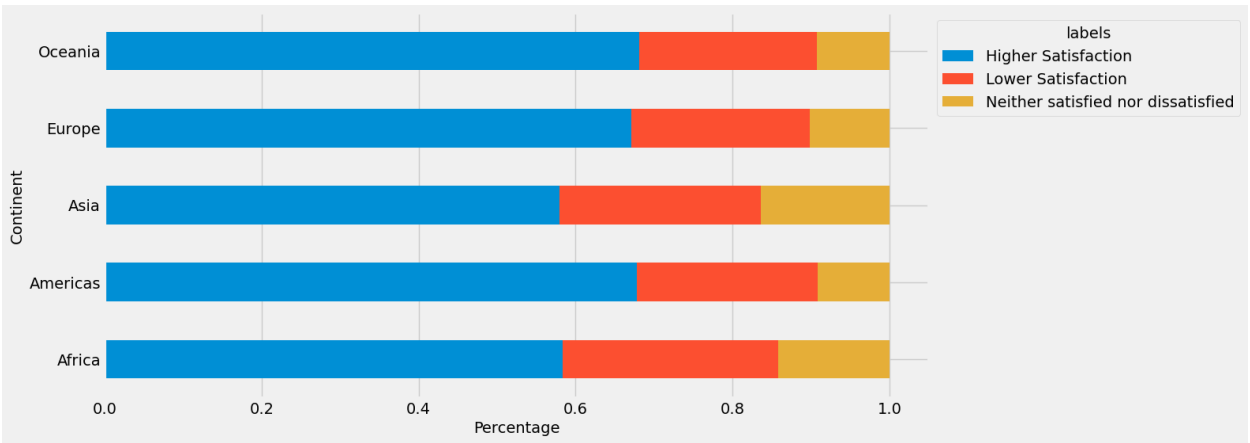


Figure 2

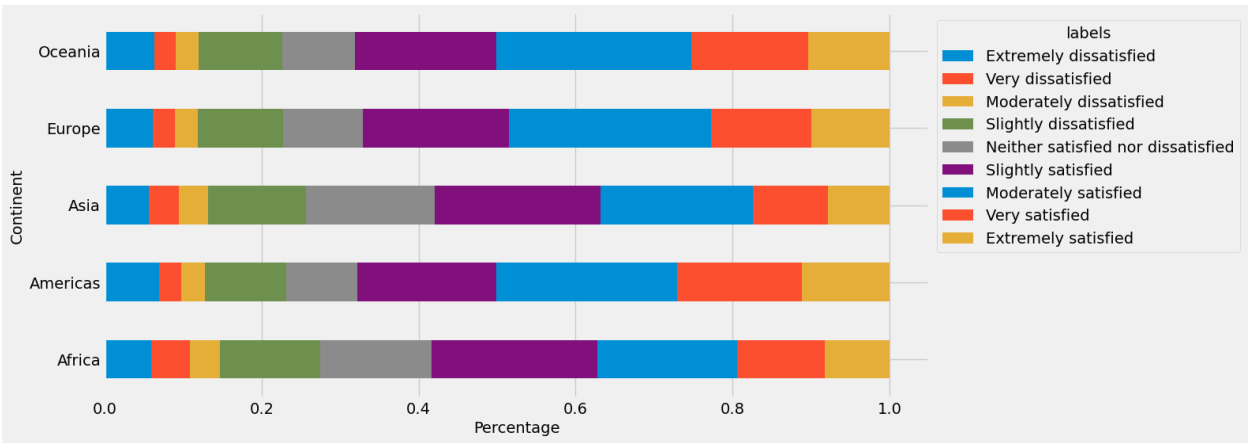


Figure 3

Sub-region Vs satisfaction

To be more precise, we have considered subregions of the continents and the results are interesting. As we have seen from previous figure, Oceania subregions have the highest satisfaction and participants from southern Europe, eastern Asia and middle Africa have shown less job satisfaction.

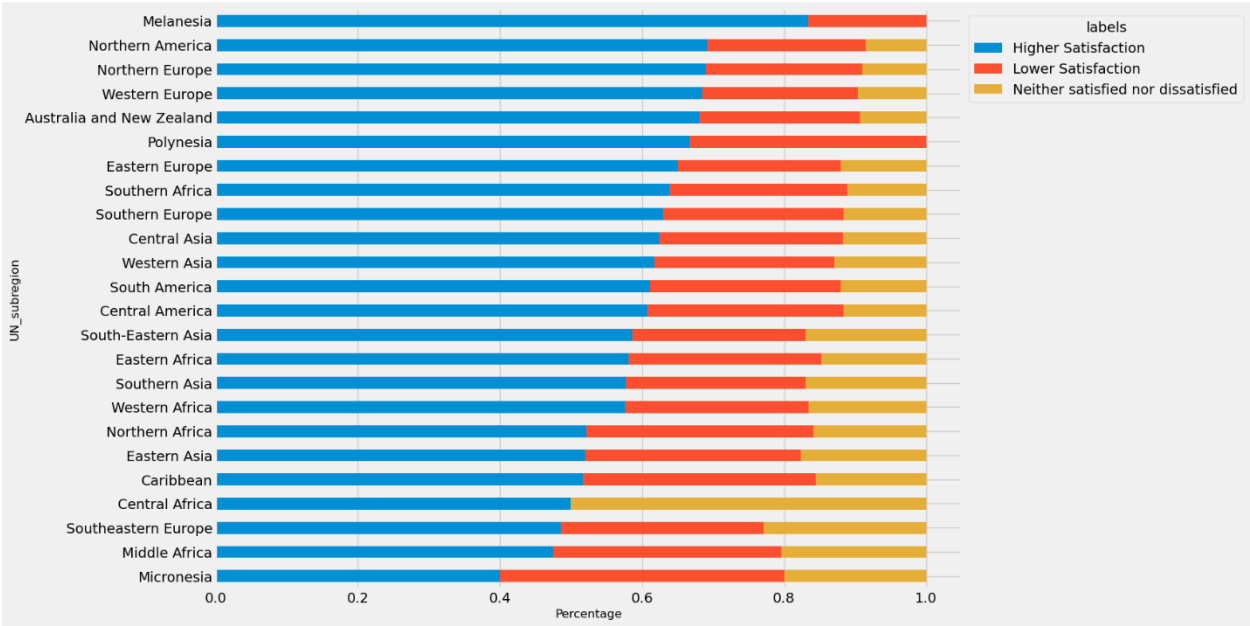


Figure 4.

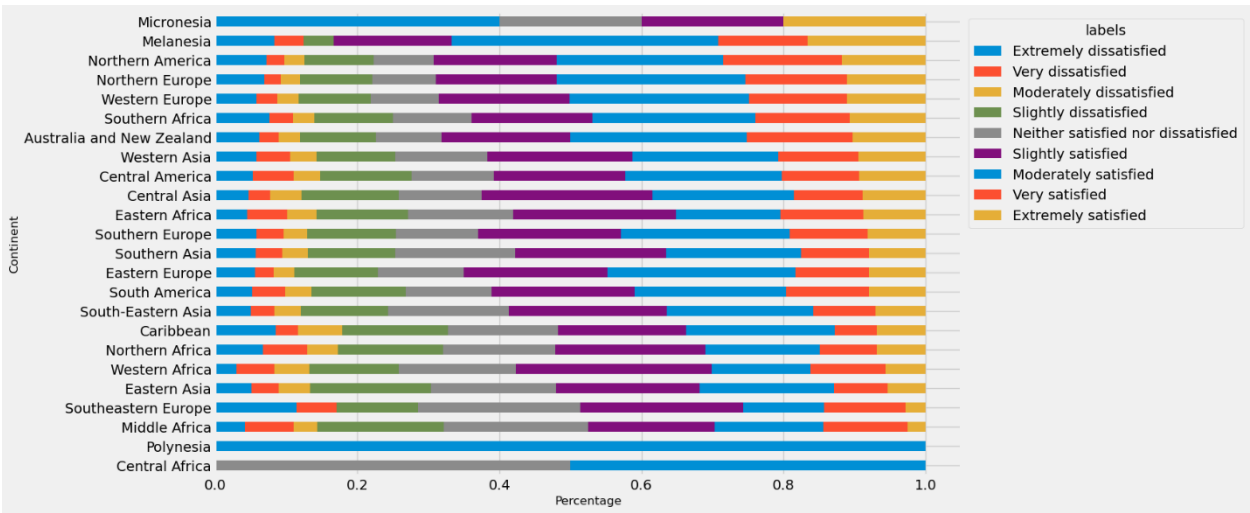


Figure 5.

## Salary Vs satisfaction

The next figure demonstrates job satisfaction based on the amount of yearly eared salary. Each satisfaction metric is mapped to a number from zero to eight and from worst to best satisfaction level.e.g extremely dissatisfied is the score zero. Figure six shows that all three gender categories, from all around the world, voted between 4 to 6 which translates to slight to moderate satisfaction. Females and genderqueers are slightly more satisfied from their eared salary comparing to males. And we can see a slight increased satisfaction when the salary is increased.



Figure 6

## Gender Vs Satisfaction

If we consider the gender of developers and their level of job satisfaction, taking into account the annual income, we can see that gender alone does not play a significant role in satisfaction in this job market. The overall trend is similar between male and female and as we have seen in figure six, satisfaction increases with higher income. Genderqueers did not respond very similar to male and female but generally the trend is toward higher satisfaction.

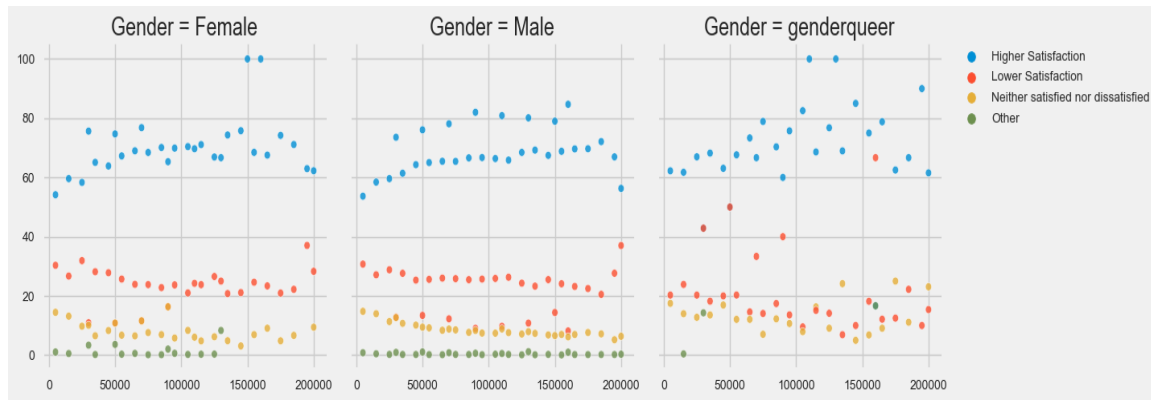


Figure 7

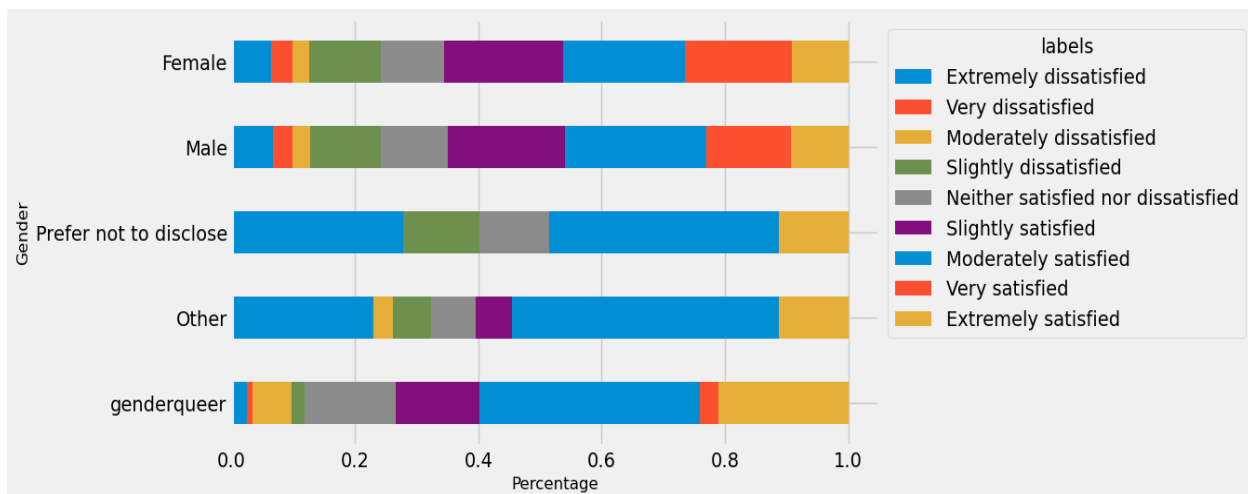


Figure 8

## Age Vs Satisfaction

Figure 7 shows satisfaction based on age of the participants differentiating the three gender categories. We can see that the results for over 60 years of age are a bit different that other age ranges. Active male developers over 60 voted for the highest satisfaction and on the contrary females and genderqueers seemed not to be very satisfied.

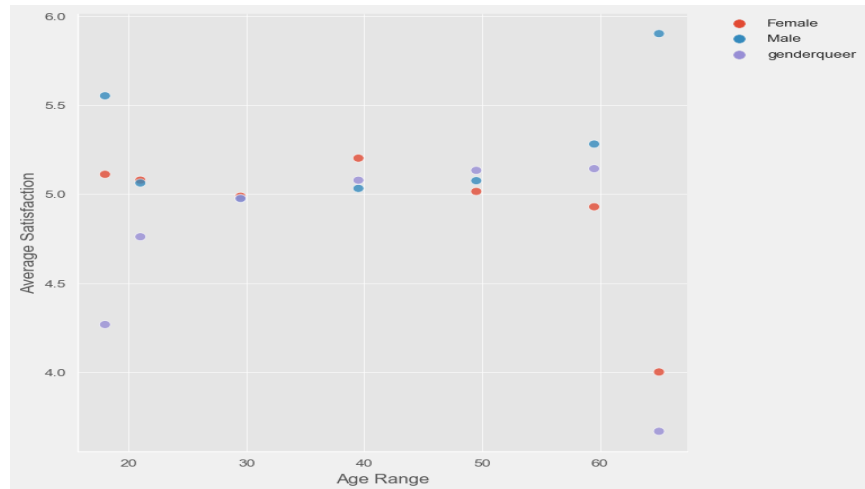


Figure 9

### Year Vs Satisfaction

Finally, we compare the annual job satisfaction from 2015 to 2020. As we can immediately see, 2016 was the worst year among the six consecutive years and the following year 2017 like 2015 developers were the most satisfied. From 2017 to 2020 the overall job satisfaction has slowly dropped. Due to pandemic 2020's slight drop in satisfaction seems to be justified.

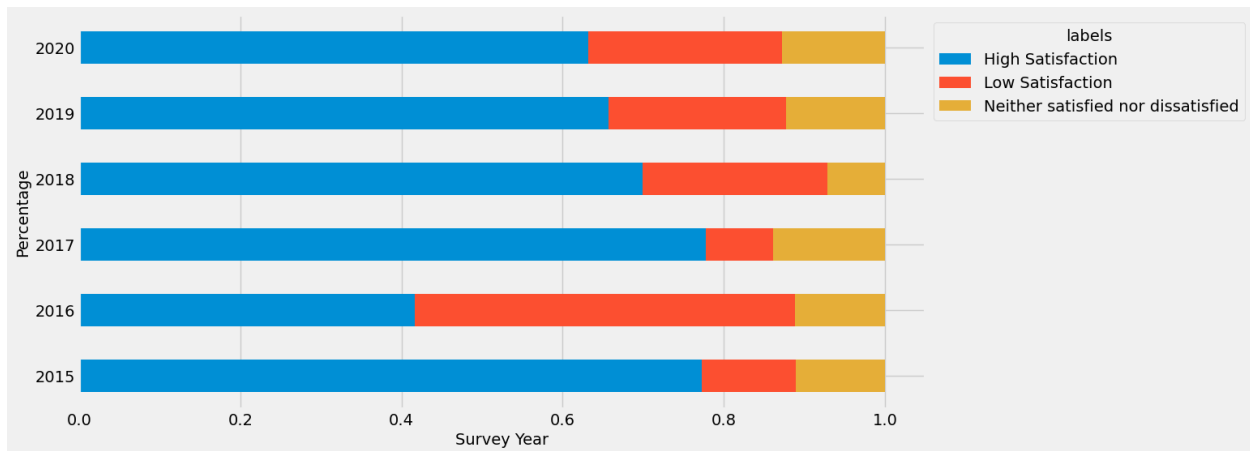


Figure 10

Figure 11, shows the same annual job satisfaction with more detailed satisfaction metrics (all nine categories).

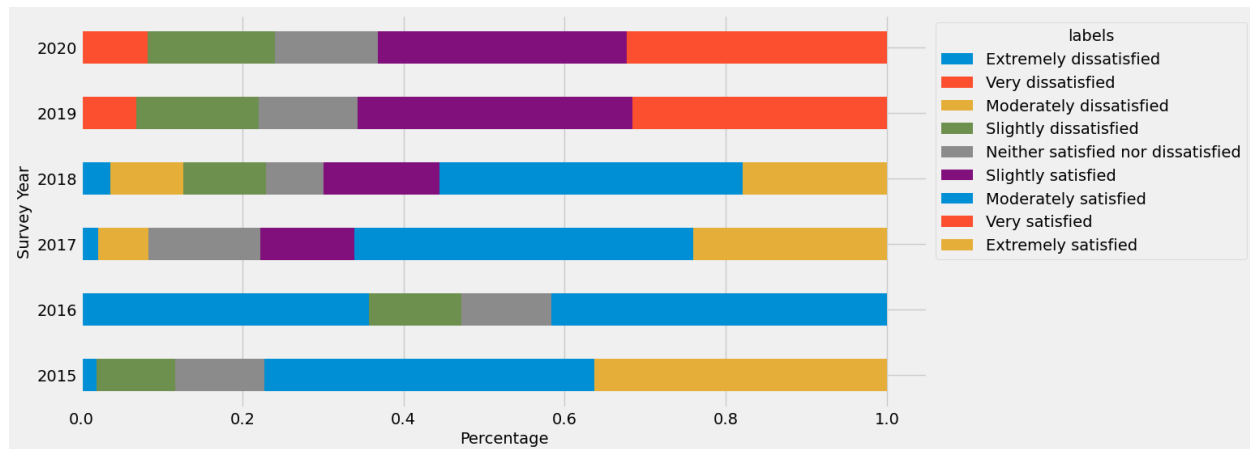


Figure 11

## Conclusion

In this article we tried to figure out job satisfaction level given a handful of metrics according to the available data sets for six consecutive years. To the best of my knowledge stackoverflow is a reputable and one of the most popular platforms that developers from around the world would refer to on a daily basis. Six questions were posed and here is a summary of the observations:

- Total job satisfaction in this job market is promising regardless of the other metrics, all around the globe developers seemed to have some level of satisfaction (at least moderately to slightly satisfied) from their job.
- This job seemed not to be gender biased and seemed to have similar satisfaction levels among different genders which seems to be a very positive sign, given job inequalities, circumstances, and their negative effect on human lives.
- The results show that age does not play a very significant role and unlike many other jobs which have certain age limitations, we can see taking an age range from under 20 to above 60 seems to show some level of satisfaction up to age 60. And the result was only different between different genders over 60. Men above 60 were much more satisfied.
- As it was expected, an increase in annual income resulted in a slightly increased level of satisfaction.
- Comparing the continent and sub-continent job satisfaction results, shows that in Oceania (countries including Australia, New Zealand) developers were more satisfied.
- Education Level

In the title of this article we asked a rather philosophical question: To be a developer or not to be? The answer is positive!

## Future Work

Although given metrics (Age, Gender, Continent, Sub-continent, salary and education level) seemed to be enough to draw meaningful conclusions regarding developers' job satisfaction but I think the next step could be



to take more detailed surveys which ask questions more specific to the field of expertise to be able to draw more interesting conclusions and find out what exactly has more effects on developers' job satisfaction.