Analysis of Campus Recruitment Data

By Manthan Bagade

This is my first project in the field of Data Science. I want to learn and apply my learnings on real life datasets. I am starting my data analysis with the help of Python. Python has extensive libraries for data analysis, and which will make my analysis presentable. I have used the dataset available on **Kaggle** with the name **“Campus Recruitment”** by “**Ben Roshan”**. I acknowledge the efforts of the creator of this dataset who collected this data. It is of great help for students like me.

# Objective

The objective of this project is to determine and analyze the **Academic and Employability factors** influencing college placements. The project will present relevant statistics and graphs which will be sufficient to draw out comprehensible conclusions for this dataset. I also aim to answer these questions based on my analysis of the data.

1. Which factor influenced a candidate in getting placed?
2. Do percentage matters for one to get placed?
3. Which degree specialization is much demanded by corporate?
4. Play with the data conducting all statistical tests.

Not to forget, the final aim of this project is to learn and apply the skills which I have developed while starting out my journey to master Data Science.

“The best way to learn Data Science is to do Data Science”

# Dataset Source and Details

The datasets are downloaded from Kaggle. The name of the dataset is **“Campus Recruitment”** by “**Ben Roshan”**. The link to the dataset is attached for the reference.

<https://www.kaggle.com/datasets/benroshan/factors-affecting-campus-placement/>

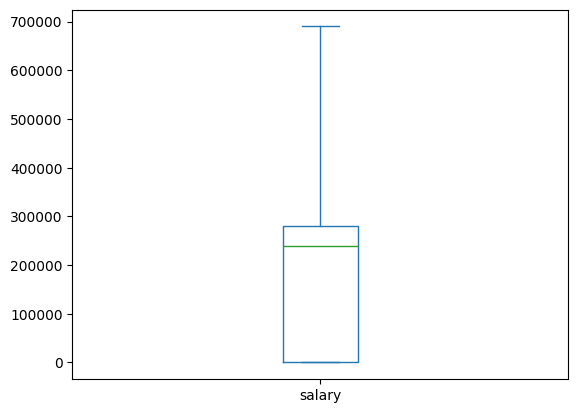
The Dataset is a csv file. The file contains a total of 215 entries and 15 columns.

| Column Name | Datatype | Description |
| --- | --- | --- |
| sl\_no | int | Serial Number |
| gender | categorical(char) | Gender - Male=‘M’, Female=‘F’ |
| ssc\_p | float | Secondary Education percentage- 10th Grade |
| ssc\_b | categorical(string) | Board of Education- Central/ Others |
| hsc\_p | float | Higher Secondary Education percentage- 12th Grade |
| hsc\_b | categorical(string) | Board of Education- Central/ Others |
| hsc\_s | categorical(string) | Specialization in Higher Secondary Education |
| degree\_p | float | Degree Percentage |
| degree\_t | categorical(string) | Under Graduation(Degree type)- Field of degree education |
| workex | categorical(string) | Work Experience |
| etest\_p | float | Employability test percentage ( conducted by college) |
| specialisation | categorical(string) | Post Graduation(MBA)- Specialization |
| mba\_p | float | MBA percentage |
| status | categorical(string) | Status of placement- Placed/Not placed |
| salary | int | Salary offered by corporate to candidates |

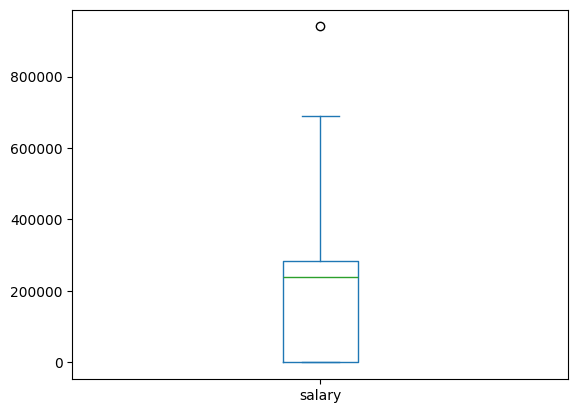
# Dataset Cleaning and Filling Missing Values

All the columns do not have any missing values except the column ‘salary’. It has 67 missing values. I filled all the missing values with 0 since the students who were unplaced did not have any salary.

I also used box plot to identify any outliers using the IQR (Interquartile range) method on the ‘salary’ column. The data was so well collected that I only found one outlier. Dropping the row was the best choice because such high salary as compared to other students cannot be accounted to academic factors. It is a result of personal hard work and can impact the statistics of the data.



Data After Dropping Outlier

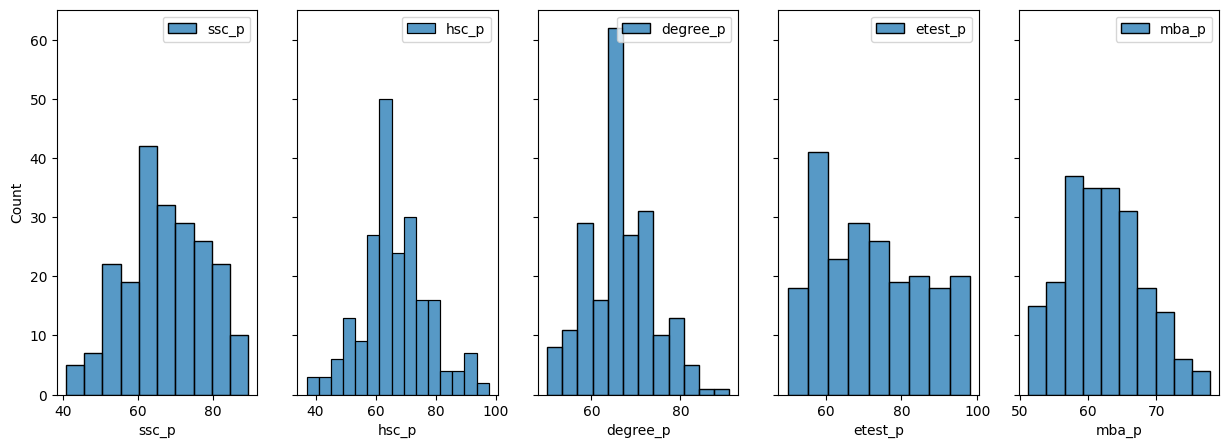


Single Outlier Point

# Data Description

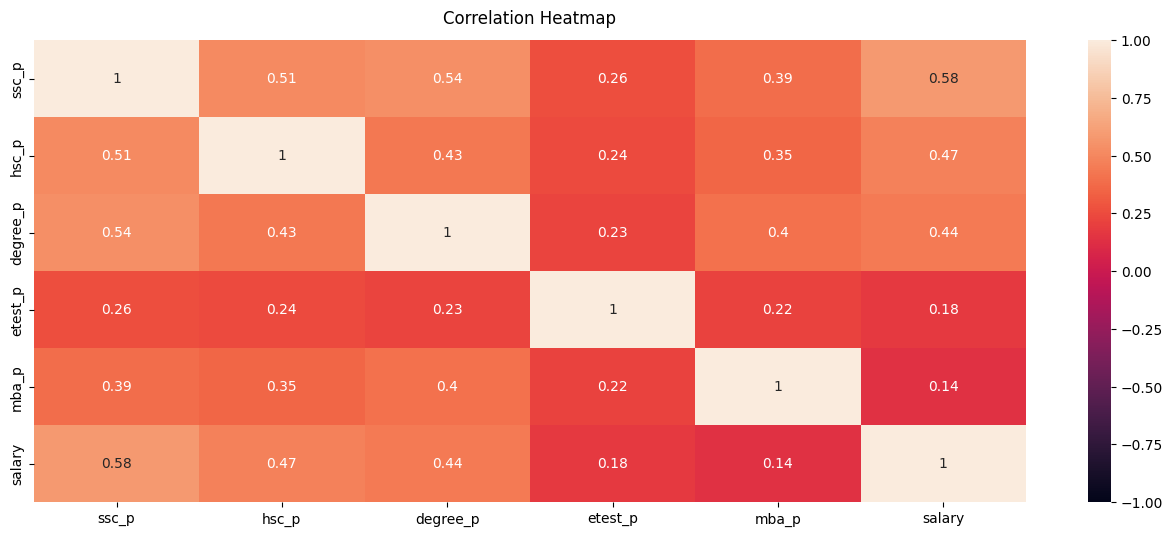
|  | ssc\_p | hsc\_p | degree\_p | etest\_p | mba\_p | salary |
| --- | --- | --- | --- | --- | --- | --- |
| mean | 67.33 | 66.32 | 66.38 | 72.05 | 62.27 | 1,95,238 |
| std | 10.84 | 10.92 | 7.37 | 13.29 | 5.85 | 1,46,553 |
| min | 40.89 | 37.00 | 50.00 | 50.00 | 51.21 | 0 |
| 25% | 60.55 | 60.85 | 61.00 | 60.00 | 57.92 | 0 |
| 50% | 67.00 | 65.00 | 66.00 | 70.50 | 61.95 | 2,40,000 |
| 75% | 75.85 | 73.00 | 72.00 | 83.75 | 66.27 | 2,80,000 |
| Max | 89.40 | 97.70 | 91.00 | 98.00 | 77.89 | 6,90,000 |

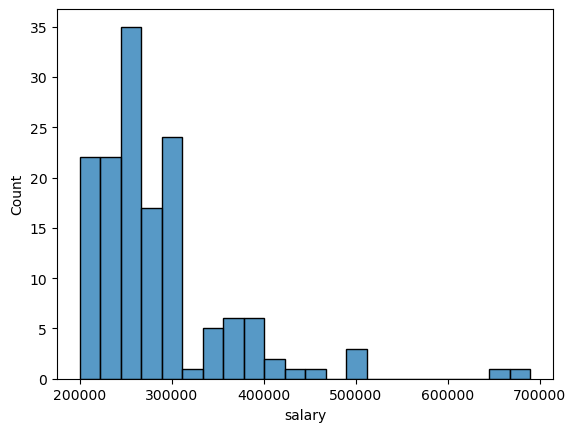
It is clear from the following histogram that maximum number of students had a salary between 2,00,000 to 3,00,000. The other peak at the start is due to the unplaced students for which we have assigned the salary as 0. Thus, we can say that the companies which are coming for the placements are able to pay only that much of the amount. The median salary is 2,40,000 which is verified by histogram.



Histogram of Academic attributes

The other histogram plots show the frequency of the percentages of different examinations.





The result of the Correlation Heatmap is quite surprising. Salary least relates to employability test and MBA percentage. Further, employability test and MBA scores are not related so strongly to any of the other academic factors. The reason for these unexpected results can be the irrelevance of the questions and the syllabus which are asked in tests. The questions asked in employability test could only assess the whether the person is fit for any job rather than evaluating him quantitatively.

Higher Secondary (12th grade) is percentage is quite related to Senior Secondary (10th grade) percentage which is self-explanatory and similarly the degree percentage is related to 10th and 12th grade scores.

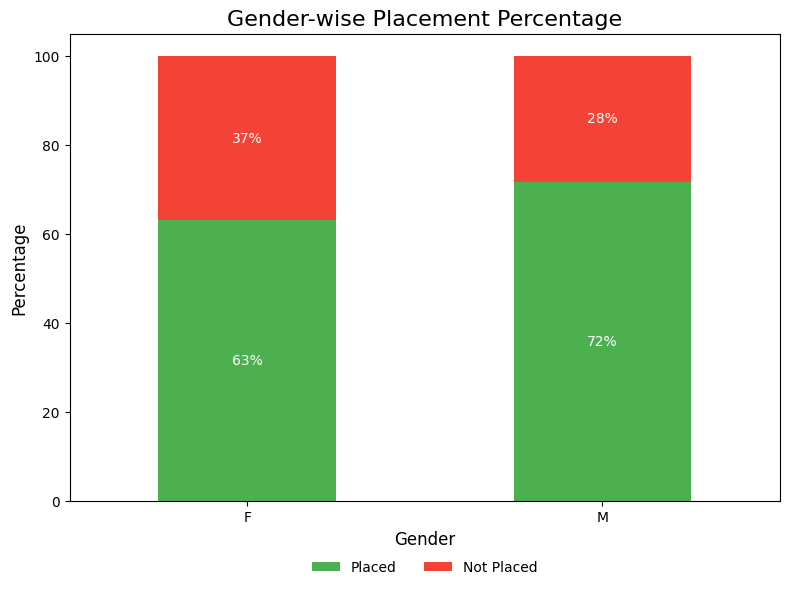
The salary is related to hsc\_p, ssc\_p and degree\_p which points that early development plays a great role in placement season.

# Data Visualization and Interpretation

Let us visualize the answers to the questions in the objectives through charts.

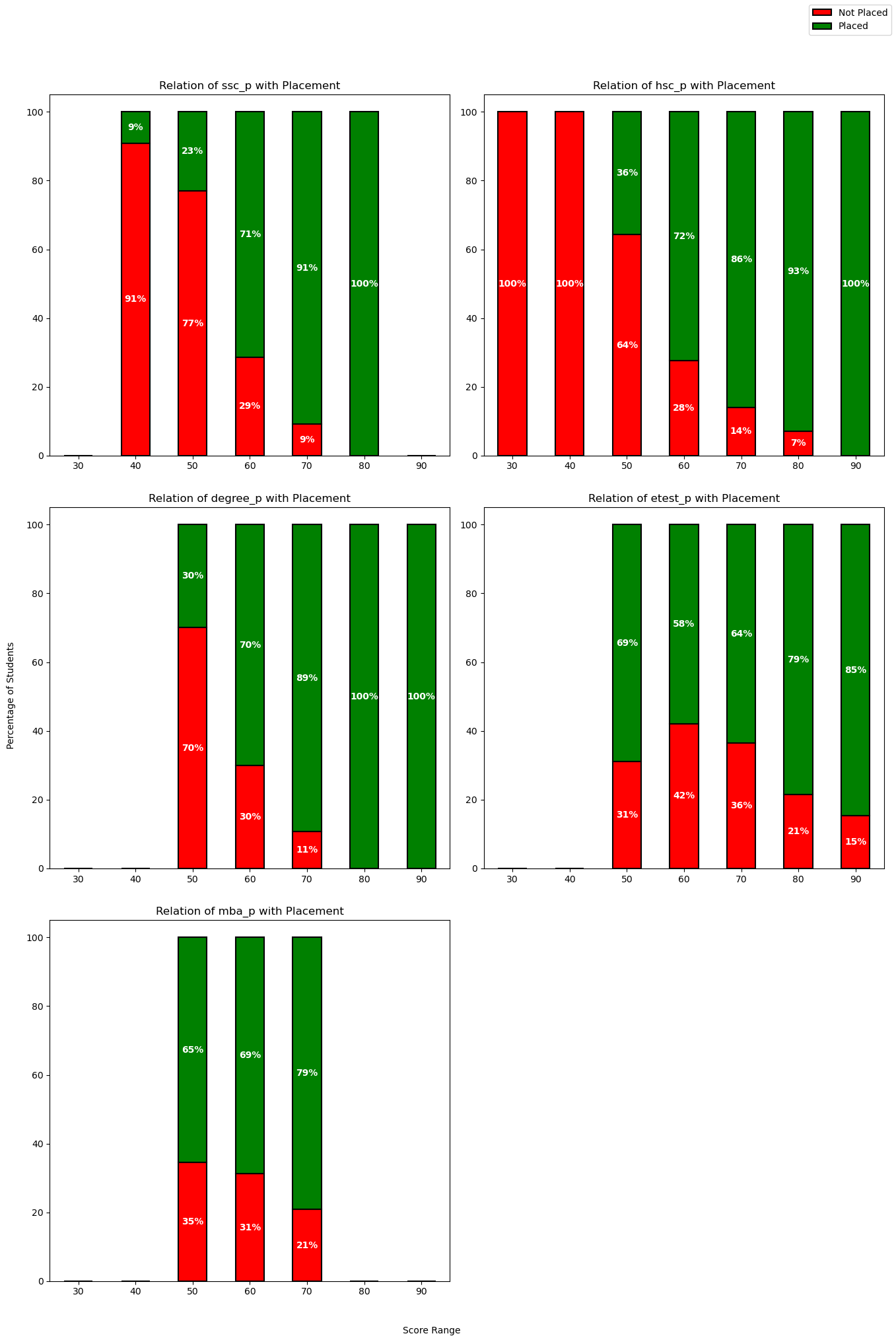
**Gender wise Analysis**

| gender | status | count | mean salary | percentage placed |
| --- | --- | --- | --- | --- |
| F | Not Placed | 28 | 0 | 36.84% |
| F | Placed | 48 | 2,67,292 | 63.16% |
| M | Not Placed | 39 | 0 | 28.26% |
| M | Placed | 99 | 2,92,434 | 71.74% |

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From the graphs male students have greater percentage of placements than Female students. They also have slightly higher salary than their counterparts. Generally, male students are more flexible, and this can be the reason they are paid higher average salary.

**Relation between ssc\_p, hsc\_p and salary**



Stacked bar graphs reflect a positive trend between test/academic and placement performance. For all the five measures—SSC% (Secondary School Certificate), HSC% (Higher Secondary Certificate), Degree%, E-test%, and MBA%—students who obtain higher marks are far more likely to get placed. The trend is similar, with lower score ranges (30–50%) having a larger number of unplaced students, and upper score ranges (70–100%) with placed candidates being in majority. Companies are screening on academic performance as a parameter, seeking students with a good academic background. Students with good academic performance consistently at different levels of studies may also have skills such as discipline, good study habits, and command over the subject, and thus be more employable.

While the trend is uniform for all the parameters, that of growth in the percentages of placements is marginally different. Some of the parameters may be directly influencing placement opportunities in a different way than others, and that may imply that recruiters are assigning more importance to some academic phases (such as degree performance) compared to others. But let's not forget, correlation is not causation. Communication skills, internships, and co-curricular activities may be contributing significantly to placements too.

Despite these subtleties, the implication becomes clear: higher grades have a direct correlation with better placement. Another incentive to keep high grades throughout one's academic life to gain the rewards of one's professional prowess.

**Undergraduate Degree Relation with Salary**

| degree\_t | mean salary |
| --- | --- |
| Comm&Mgmt | 1,90,833 |
| Others | 1,27,454 |
| Sci&Tech | 2,18,627 |

* Students with **Science and Tech** background have higher salaries because they have large skill set. They have pretty good knowledge about technical stuff and their specialization in marketing and finance/HR gives them a better edge. This makes them an ideal candidate for companies.
* Those from a **Commerce & Management** background already have business exposure, making their master's degree less of a specialization leap. They likely get placed in general business roles (marketing, sales, or finance) with moderate starting salaries. These roles may not require advanced analytical or technical skills, leading to slightly lower pay than Sci&Tech graduates.
* The **"Others"** category likely includes students from arts, humanities, or other general disciplines, who may not have had strong exposure to either business or technical skills. Even with a master's in business, they might struggle to compete with Science & Tech or Commerce & Management graduates in the job market. They may get placed in supportive, non-specialized roles with relatively lower pay.