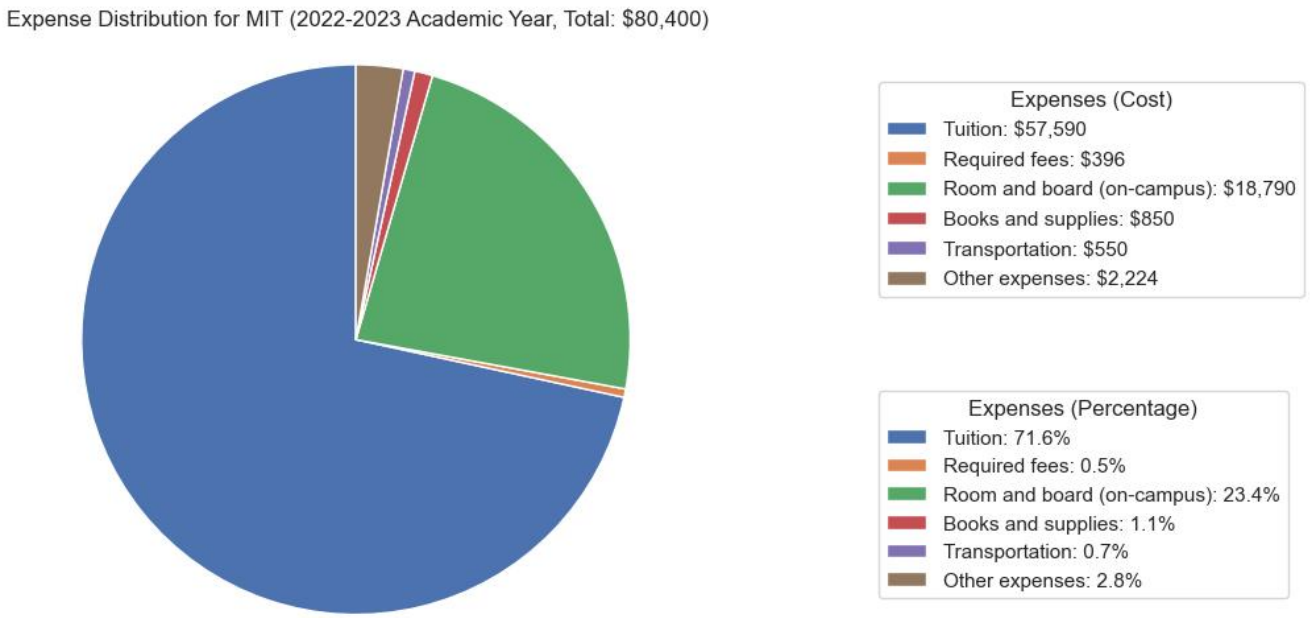
Exploratory Data Analysis of MIT's Institutional Characteristics

Introduction

The Massachusetts Institute of Technology (MIT) is a renowned research university located in Cambridge, Massachusetts, and is considered one of the world's leading institutions of higher education. With a focus on innovation, research, and technology, MIT attracts top talent from around the globe and offers a wide range of educational programs and opportunities. In this project, we will analyze and summarize data on four key aspects of education at MIT, including the distribution of expenses, faculty members, class sizes, and conferred bachelor's degrees. By examining these different aspects, we can gain insights into the resources, diversity, and educational programs at MIT, and understand the factors that make it a leading institution in the world of higher education.

1.Cost

1.Visualization

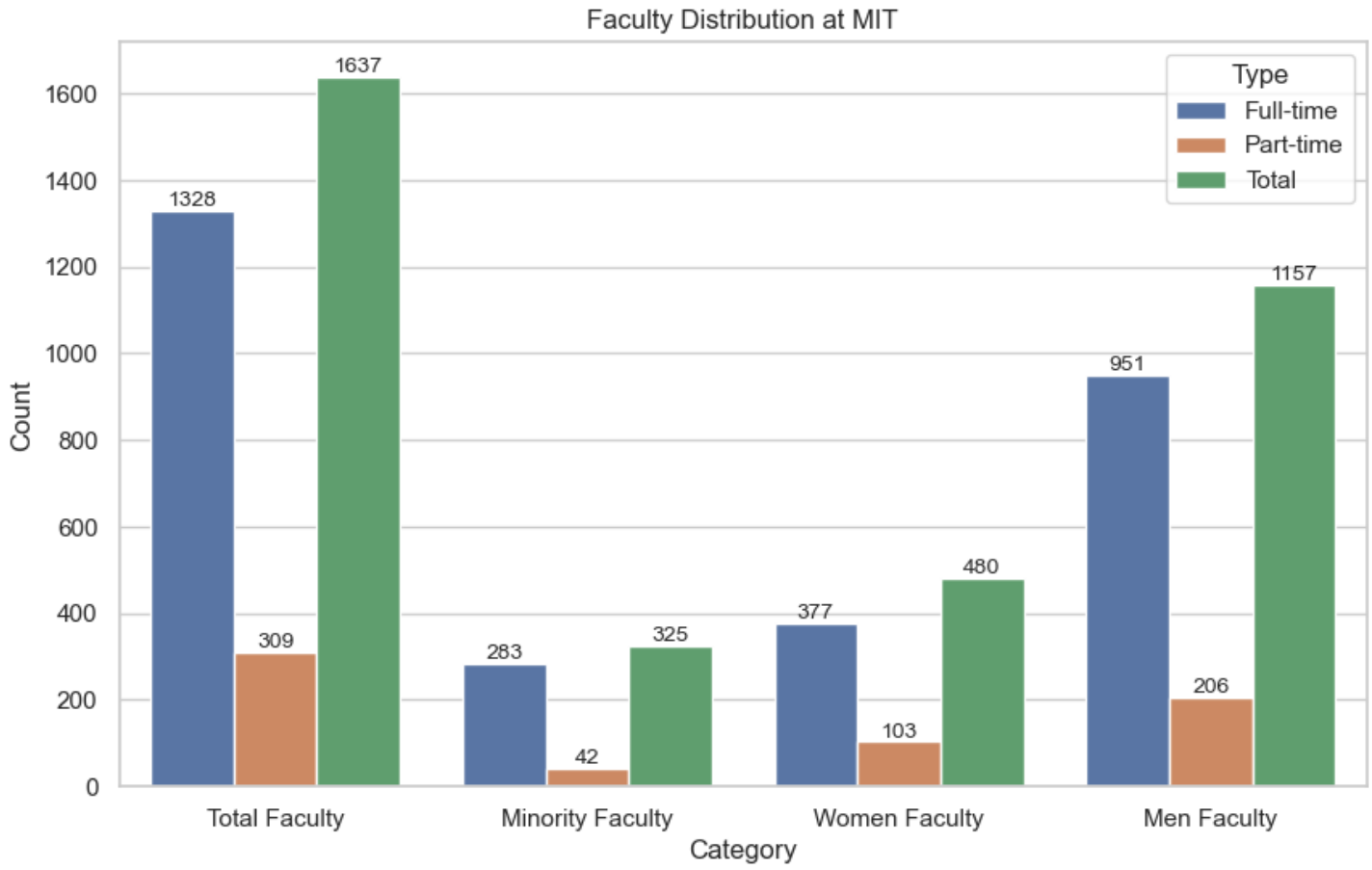


2.Results

The pie chart displays the distribution of expenses for the 2022-2023 academic year at MIT. The largest expense is tuition, accounting for 71.6% of the total expenses. The next highest expenses are room and board on campus (23.4%) and other expenses (2.8%). Required fees, books and supplies, and transportation make up a much smaller proportion of the total expenses. The chart is accompanied by two legends, one showing the actual cost of each expense, and the other displaying the percentage of the total expenses that each expense accounts for. This chart is a useful tool for visualizing the allocation of expenses and provides a quick overview of the main expenses that students can expect to incur while attending MIT.

2.Instructional Faculty

1.Visualization



2.Results

The grouped bar chart shows the distribution of faculty at MIT based on their category, with a focus on the full-time and part-time faculty as well as minority and women faculty. The chart highlights that out of the total 1637 faculty members at MIT, only 283 (17.3%) are classified as minority faculty, whereas 480 (29.3%) are women faculty. It is also evident that the majority of the faculty members are full-time, with 1328 (81.1%) in that category, while 309 (18.9%) are part-time. The data labels on top of the bars provide a clear view of the total count for each category and type, making it easy to compare the different categories and types of faculty members. This chart provides a comprehensive overview of the distribution of faculty at MIT and could help in identifying areas that require improvement in terms of diversity and gender equality among the faculty members.

3.Class Size

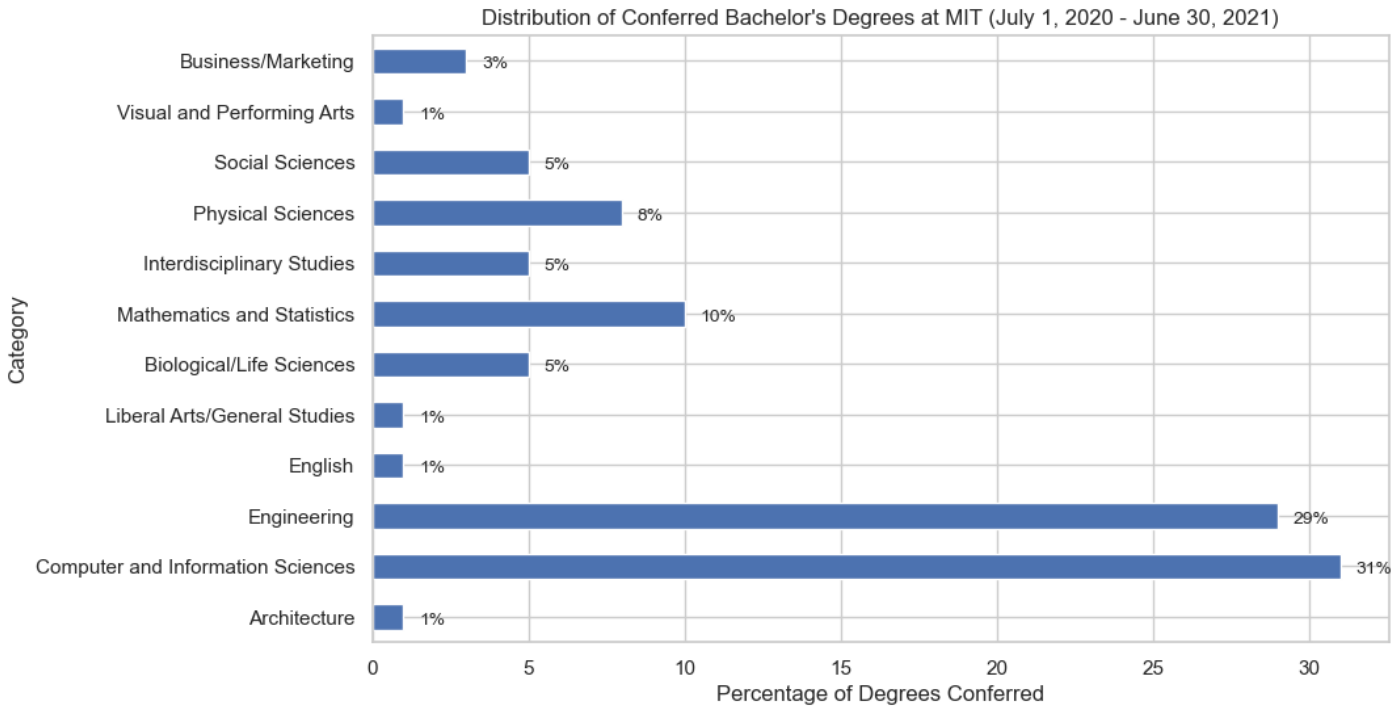
1.Visualization

2.Results

The above table provides a breakdown of class sizes at MIT, with information on the number of sections and subsections available for each class size. The largest class size category is for classes with 2-9 students, which account for 424 sections and 70 subsections. The next largest category is classes with 10-19 students, which account for 282 sections and 108 subsections. Classes with 20-29 students make up the next largest category, with 106 sections and 43 subsections. The remaining class size categories have fewer sections and subsections, with the smallest category being classes with 100+ students, which have 36 sections and 0 subsections. This breakdown can help students and faculty understand the distribution of class sizes at MIT and make informed decisions about which courses to take or teach.

4.Degrees Conferred

1.Visualization



2.Results

The horizontal bar chart shows the distribution of conferred bachelor's degrees at MIT for the academic year between July 1, 2020, and June 30, 2021, based on different categories. The x-axis of the chart represents the percentage of bachelor's degrees conferred, while the y-axis shows the different categories. The chart highlights that computer and information sciences, engineering, and mathematics and statistics are the most popular categories of bachelor's degrees conferred, accounting for 31%, 29%, and 10% of the total degrees, respectively. Other categories such as social sciences, biological/life sciences, and physical sciences are also well-represented, with 5-8% of the total degrees conferred. Meanwhile, categories such as architecture, English, liberal arts/general studies, and visual and performing arts have a relatively lower percentage of degrees conferred, with less than 3% in each category. This chart provides a useful overview of the distribution of conferred bachelor's degrees at MIT and can be helpful in making informed decisions on educational programs and resource allocation.

Conclusions

Overall, the summaries reveal important findings related to the expenses, faculty distribution, class sizes, and conferred bachelor's degrees at MIT. The pie chart highlights that tuition is the largest expense for students, accounting for 71.6% of total expenses, while room and board on campus and other expenses follow. The faculty distribution chart shows that the majority of faculty members at MIT are full-time and that women and minority faculty are underrepresented, highlighting the need for improvements in diversity and gender equality. The breakdown of class sizes shows that the majority of classes at MIT have between 10-99 students, with the most common class size being in the 50-99 range. Finally, the chart on conferred bachelor's degrees highlights that computer and information sciences, engineering, and mathematics and statistics are the most popular categories, while categories such as architecture, English, liberal arts/general studies, and visual and performing arts have a relatively lower percentage of degrees conferred. These findings provide valuable insights into the different aspects of education at MIT and can inform decisions related to resource allocation, program development, and more.