

Tests	Cases	Hypothesis
1 sample t-test	A Company named 'OrgoPro' which sells organic products wants to increase its sales. To achieve that the company introduced a lifelong subscription plan with which the subscribers can get flat 5% off on all vegetables for lifetime. The company wants to know that whether this plan has helped them to increase its sales?	Ho: The subscription plan has not helped to improve the sales Ha: The subscription plan has helped to improve the sales
	A Telecom Company named 'Pentatel' wants to increase its customer base. For this, the company launched a new student sim aiming for University students. The company wants to know whether there's a considerable increase in the customer base 6 months after the sim launch?	Ho: The new sim launch has not helped to increase the customer base Ha: The new sim launch has helped to increase the customer base
1 sample proportion test	A blood donation camp was organised by an NGO at Thomson University. All the students in the University volunteered and donated blood. After collection the University claimed that 60% of the students had their blood group as O+. The NGO contradicted the claim stating that only 50% of the students had their blood group as O+. The NGO needs to prove its statement with the samples they collected.	Ho: 60% of the students have their blood group as O+ Ha: 60% of the students do not have their blood group as O+
	A Consultancy named 'Study Abroad Consultancy' published a report which stated that about 70% of the students in India wishes to leave India and study abroad due to lack of good teachers and infrastructure in the Universities in India. This sparked a debate and an online portal named 'Fact Check' decided to prove this claim False.	Ho: 70% of the students in India wants to study abroad Ha: 70% of the students in India do not want to study abroad
2 sample t-test	A car manufacturer was planning to launch a facelifted model of their SUV. A team was assigned to come up with new designs with features which looks equally appealing to Gen Z as well as Millenials. The new model was given for test drive for both groups. The manufacturer collected the ratings of both groups and compared to know whether the new model is equally appealing to both groups.	Ho: The average ratings given by both groups are equal, ie, there is no statistically significant difference in the satisfaction level of both groups. Ha: The average ratings given by both groups are not equal, ie, there is a statistically significant difference in the satisfaction level of both groups.
	A school had 2 sections in their high school division. Among them one section was exposed to activities which catered to their creative interests along with academics while the other had only academics. The teachers evaluated both the sections and claimed that first group performed better because of inclusion of co-curricular activities.	Ho: The average scores of students in both sections are equal Ha: The average scores of students in both sections are not equal
	In a Taekwondo School named 'Ninja School of Taekwondo', one of its founders came up with a high intensity training plan for their students aiming to improve their performance. The co-founders agreed to implementing the plan as a pilot program for a selected group of 50% of the students and based on the outcome extending it to all students. After 6 months, the co-founders needs to know that the program is effective or not?	Ho: There is no statistically significant difference in performance of the students enrolled in High Intensity Training Plan and those who did not. Ha: There is a statistically significant difference in performance of the students enrolled in High Intensity Training Plan and those who did not.

2 sample proportion test	A company named 'Protomax' wanted to launch a new variety of protein powder which recommends 10 times faster muscle growth than existing protein powders. As a part of this launch, they decided to distribute free samples to 50 out of the 100 gyms Bilekahalli. After 6 months, the company collected the results of the gym goers in all the 50 gyms where Protomax were distributed and compared with those other 50 which didn't use it. The company wanted to know whether their product is 10 times more effective than their competitors?	Ho: There is no statistically significant difference in rate of muscle growth of the people who used Protomax and those who not. Ha: There is a statistically significant difference in rate of muscle growth of the people who used Protomax and those who not.
Paired t-test	A Physical Education Trainer wanted to conduct an awareness programme on importance of Sports for the students in his School stating that the number of students participating in Monthly Sports meet has been decreasing consistently. The school considered his request but asked him to review whether the training was helpful after 6 months.	Ho: There is no statistically significant difference in average number of students participating in Sports Meet after the programme . Ha: There is a statistically significant difference in average number of students participating in Sports Meet after the programme.
	A company wanted to review the quality of their internship program. For this they conducted an exam for their new batch of interns on day 1 of their internship and also on the day 180 when the internship ended. Their scores were evaluated to know have the benefitted from the program or not.	Ho: There is no statistically significant difference in average score of the intern batch before and after internship. Ha: There is a statistically significant difference in average score of the intern batch before and after internship.
ANOVA test	An analysis was done on the Covid-19 data of 5 states in South India- Kerala, Karnataka, Telangana, Andhra Pradesh and Tamil Nadu. The Association for Covid control in South India claimed that the average number of Covid deaths reported in the 5 states in the year 2020 was equal. The Central government rejected this claim. The Association needs to prove this with supporting data.	Ho: There is no statistically significant difference in average number of Covid deaths in all 5 states. Ha: There is a statistically significant difference in average number of Covid deaths in all 5 states.
	An analysis was done on tourism in- Singapore, Malaysia and Thailand. The average number of tourists visited these places in the year 2020 is claimed to be equal.	Ho: There is no statistically significant difference in average number visitors in the 3 places. Ha: There is a statistically significant difference in average number visitors in the 3 places.
Regression Test	The employees in a company want to know that is there any linear association / relation between their working hours and their hike percentage?	Ho: There is no linear association between their working hours and hike percentage. Ha: There is a linear association between their working hours and hike percentage.
	The students in a college want to know that is there any linear association / relation between their average submission time for assignments and their internal marks?	Ho: There is no linear association between their average submission time for assignments and their internal marks. Ha: There is a linear association between their average submission time for assignments and their internal marks.
Chi-squared Test	A company wants to know that among their employees, is there any relation between their marital status and their performance ratings?	Ho: There is no association between gender and performance ratings Ha: There is an association between gender and performance ratings
	A school wants to find out that among the students, is there any relation between their gender and their fondness for Sports?	Ho: There is no association between gender and liking for Sports Ha: There is an association between gender and liking for Sports