RESEARCH PROPOSAL
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On average, do free apps with advertisements get lower ratings than paid apps?

Imagine a company wants to publish a stand alone app, one without in-app purchases. The company wants to make a profit off their app. They are, however, undecided as to whether to make the app cost or make the app free but have in-app ads to fund their project. The goal of my research project is to help developers in this situation decide whether it is better to have a purchasable app or a free app with ads by comparing the average ratings of a sample of apps that are free but ad enabled with a sample of apps that are purchasable. Lower ratings leads to fewer downloads and hence less revenue.

Are having in-app ads detrimental to ratings? Being a user of both purchased and free apps with ads, personally I dislike ads in apps. So when I found the dataset Google Play Store Apps, a dataset containing information on over 2 million apps in the Google Play store, this question came to mind. I am curious as to whether ad enabled free apps on average have lower ratings than paid apps. The dataset, Google Play Store Apps, is also interesting as it is a large dataset with many variables. There is potential for exploration of many different hypotheses.

The hypotheses:

H0: Xpaid - Xfree = 0. There is no difference between the mean of the average ratings of paid apps and free apps

HA: Xpaid - Xfree > 0. The mean of the average ratings is greater for paid apps than free apps.

With these hypotheses I will perform a one-sided t-test and interpret the results to answer the business question: On average, do free apps with advertisements get lower reviews than paid apps?

The dataset, Google Play Store Apps, can be found on the following Kaggle page
https://www.kaggle.com/gauthamp10/google-playstore-apps