THINKFUL Data Science

Capstone Project 1

Analysis on Employee Attrition Dataset and Underlying Trends

Presenter: Henry Ssembatya

Introduction

Employee Attrition

- Reduced Effectiveness of Workers at the Job.
- Low Productivity
- Reduced Motivation
- Employee Turnover

Dataset

35 — • Attributes

1470 — • Instances

Source — • IBM

PerformanceRating
Department StockOptionLevel HourlyRate
JobLevel TrainingTimesLastYear
OverTime YearsAtCompany MaritalStatus
Gender YearsSinceLastPromotion Education
Age YearsWithCurrManager DailyRate
EducationField YearsInCurrentRole
JobInvolvement WorkLifeBalance
Attrition Over TotalWorkingYears
RelationshipSatisfaction MonthlyIncome
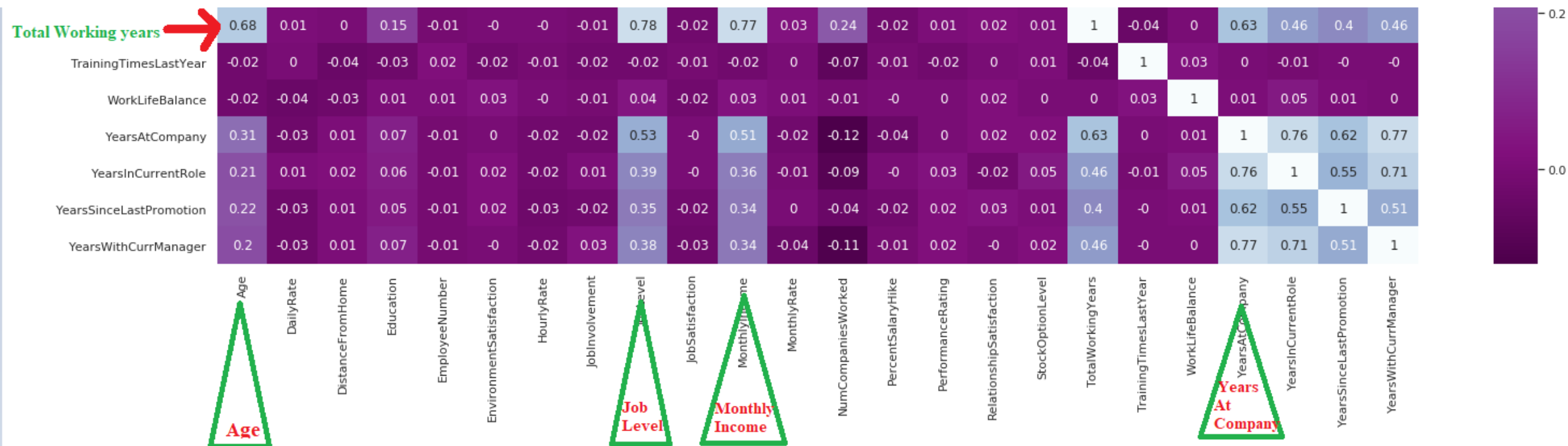MonthlyRate PercentSalaryHike
JobSatisfaction JobRole

Heatmap(Section)

Hypothesis
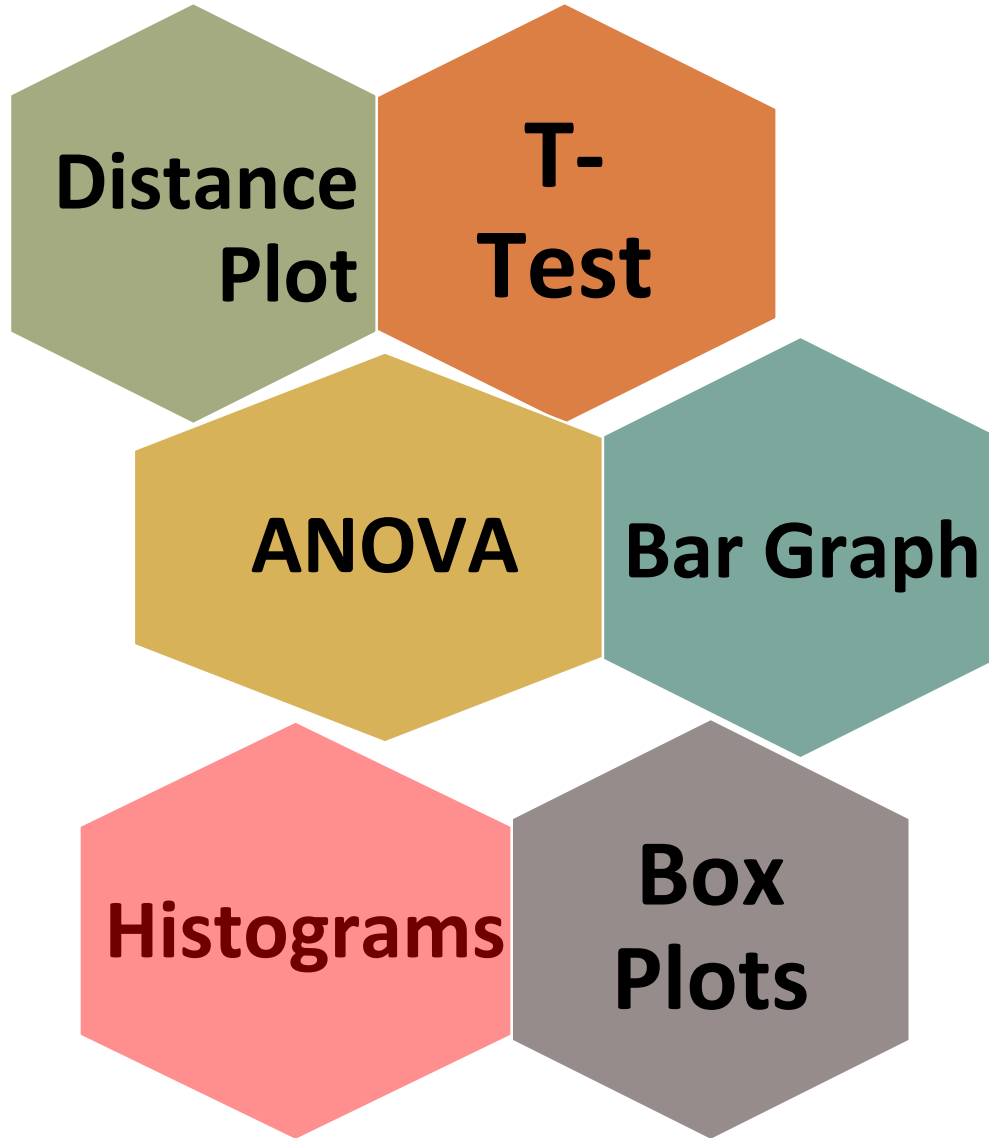
Distance Plot

T-Test

ANOVA

Bar Graph

Histograms

Box Plots

Are Married people more likely to be satisfied with their jobs compared to Single people?

Analysis

Groups	Sample Size	Attrition Rate
Single	470	0.255
Married	673	0.124
Divorced	327	0.101

T-test Stats=5.75, **Pvalue**=1.17-08)

Is there a difference in Attrition rate between the single and married population?
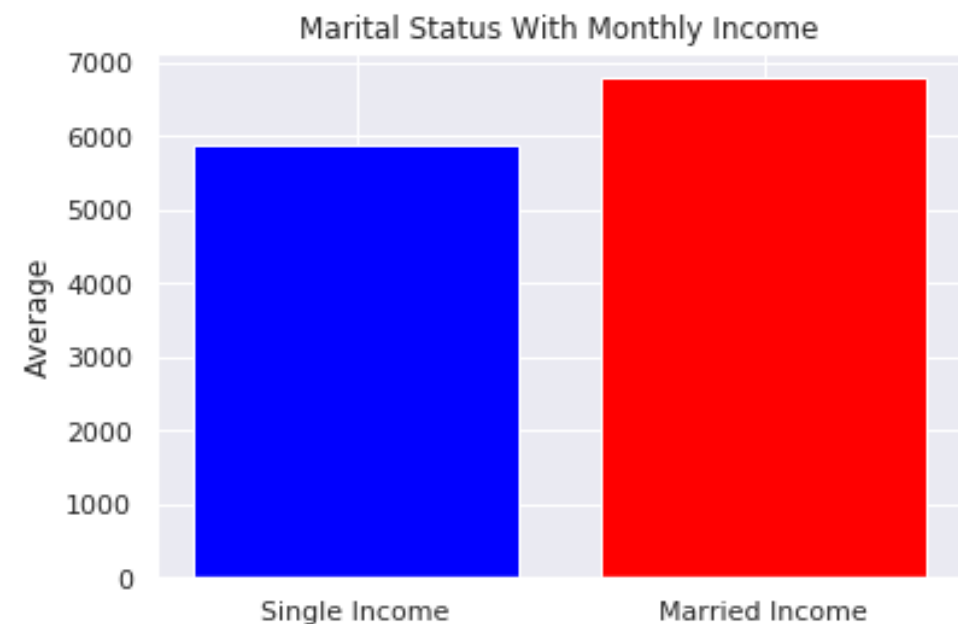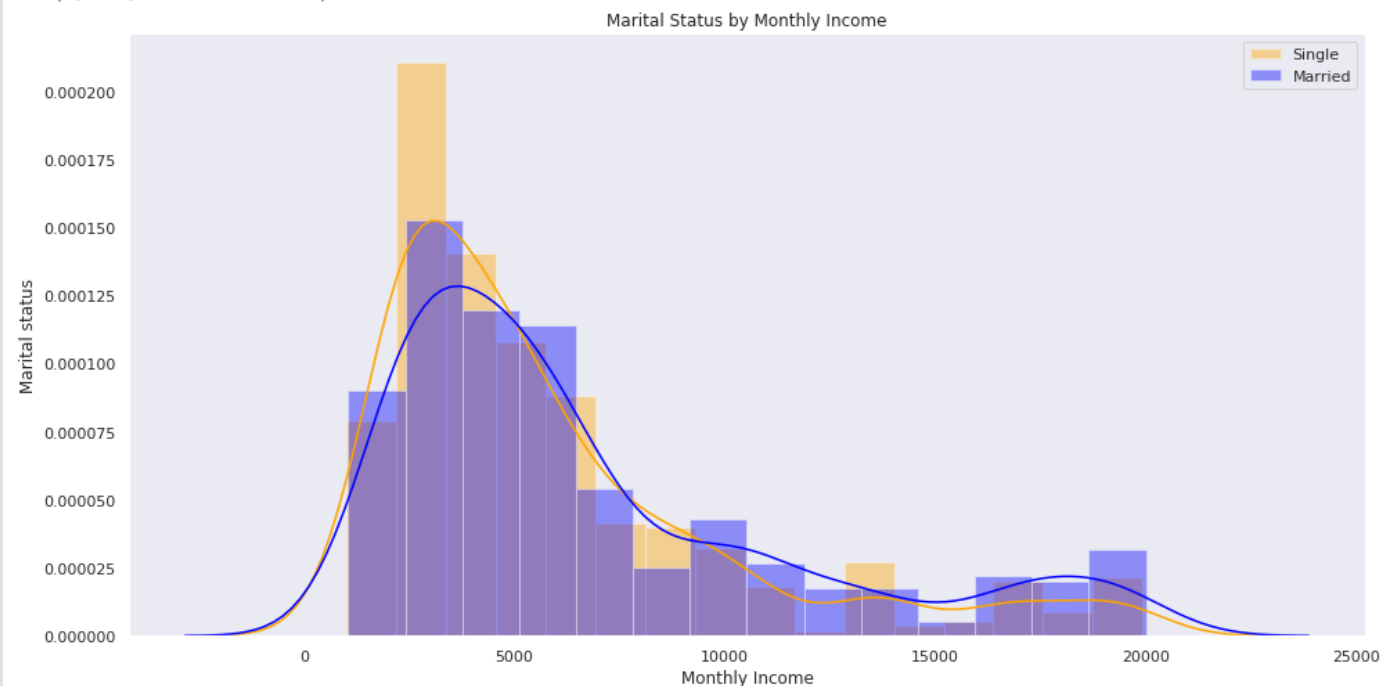

Mean Attrition Among Single Vs Married
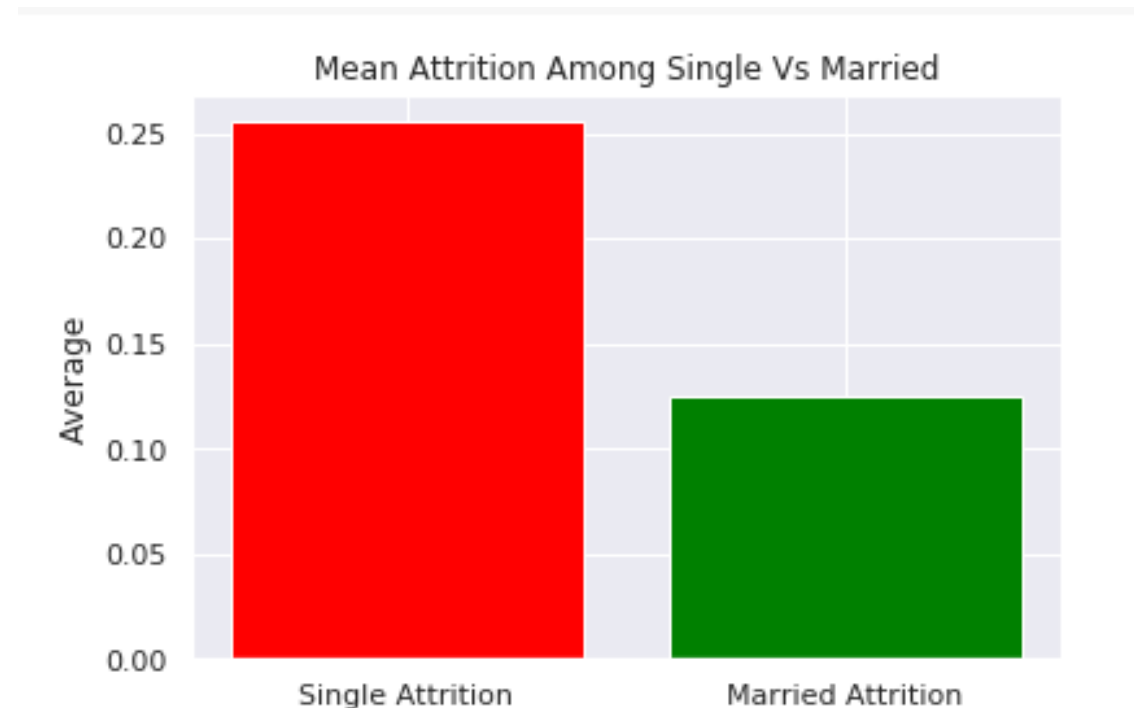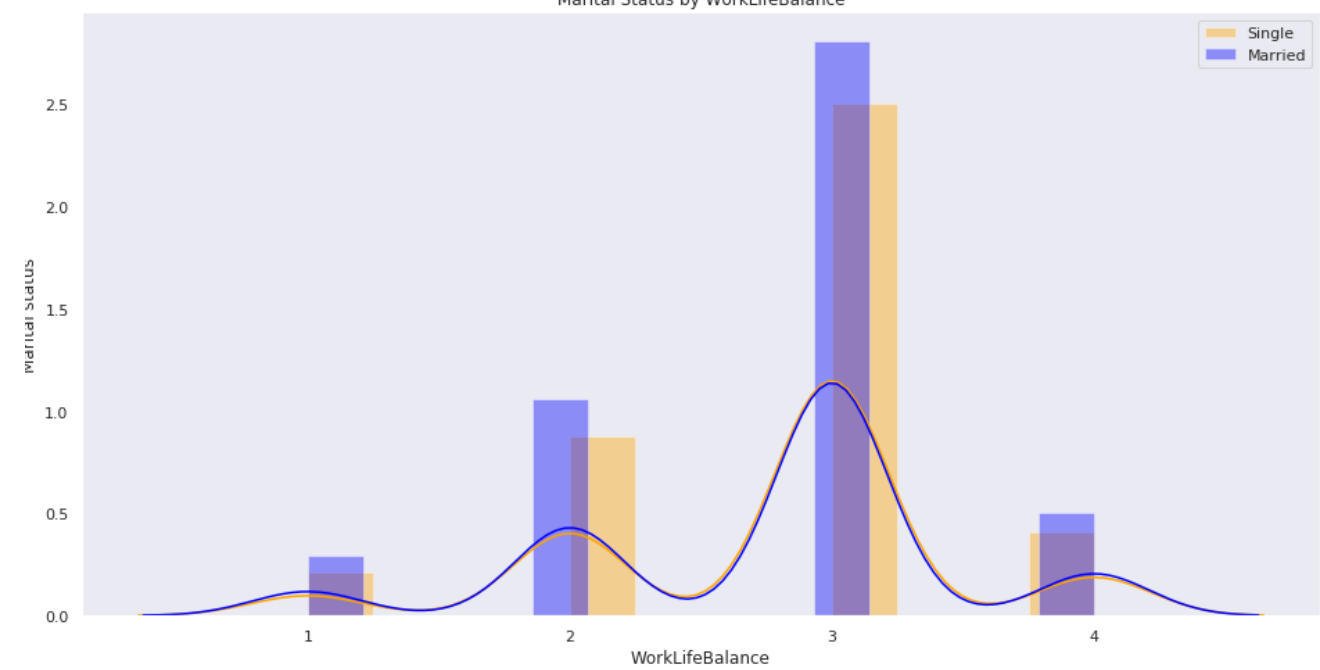
1. Why is the attrition rate higher among the single population?
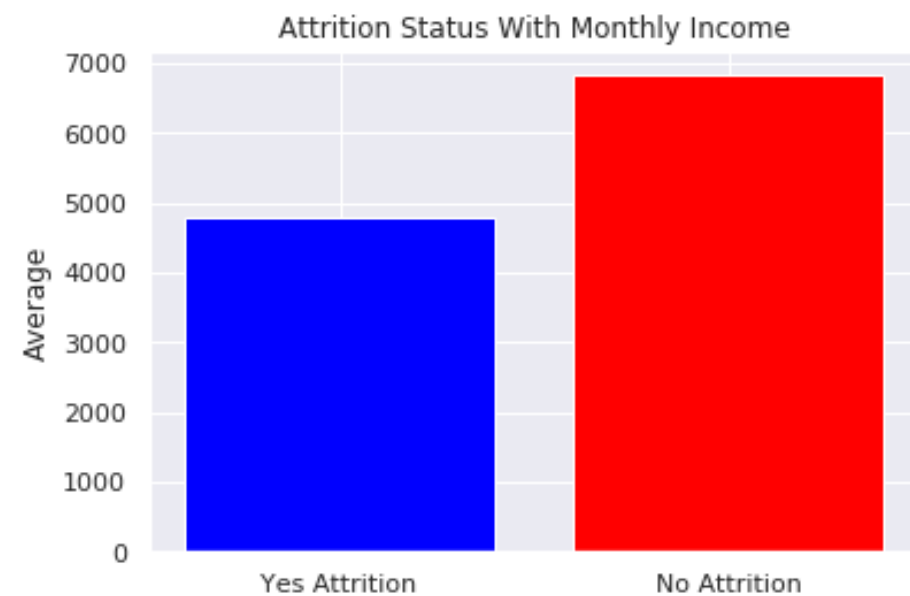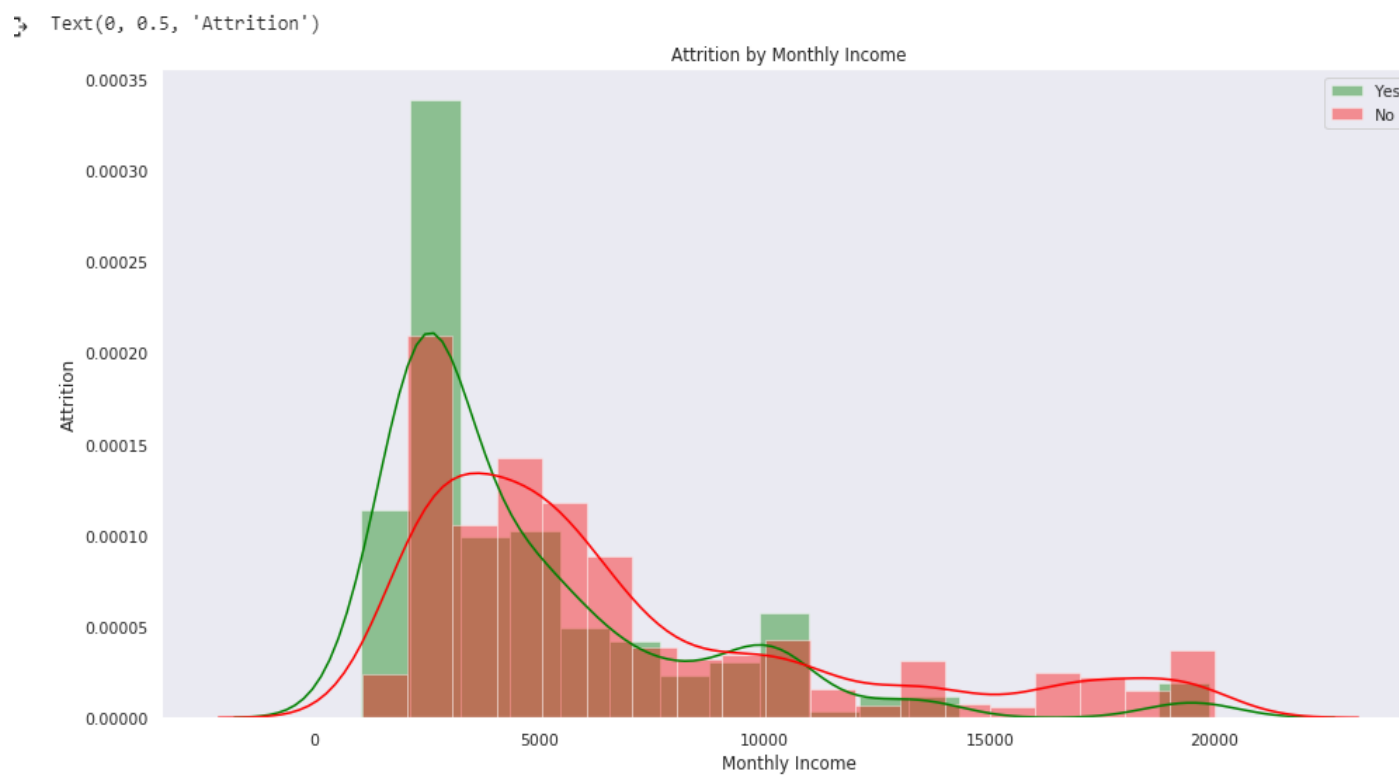
2. Why is the attrition rate higher among the single population?
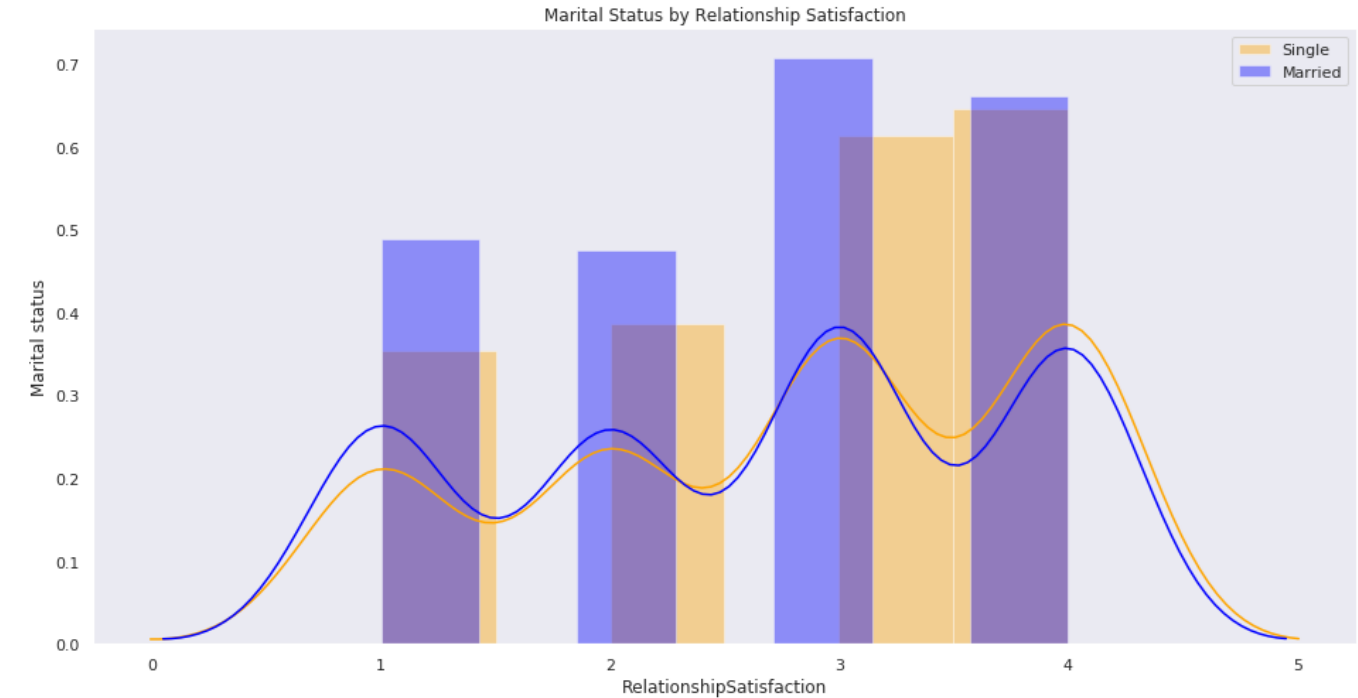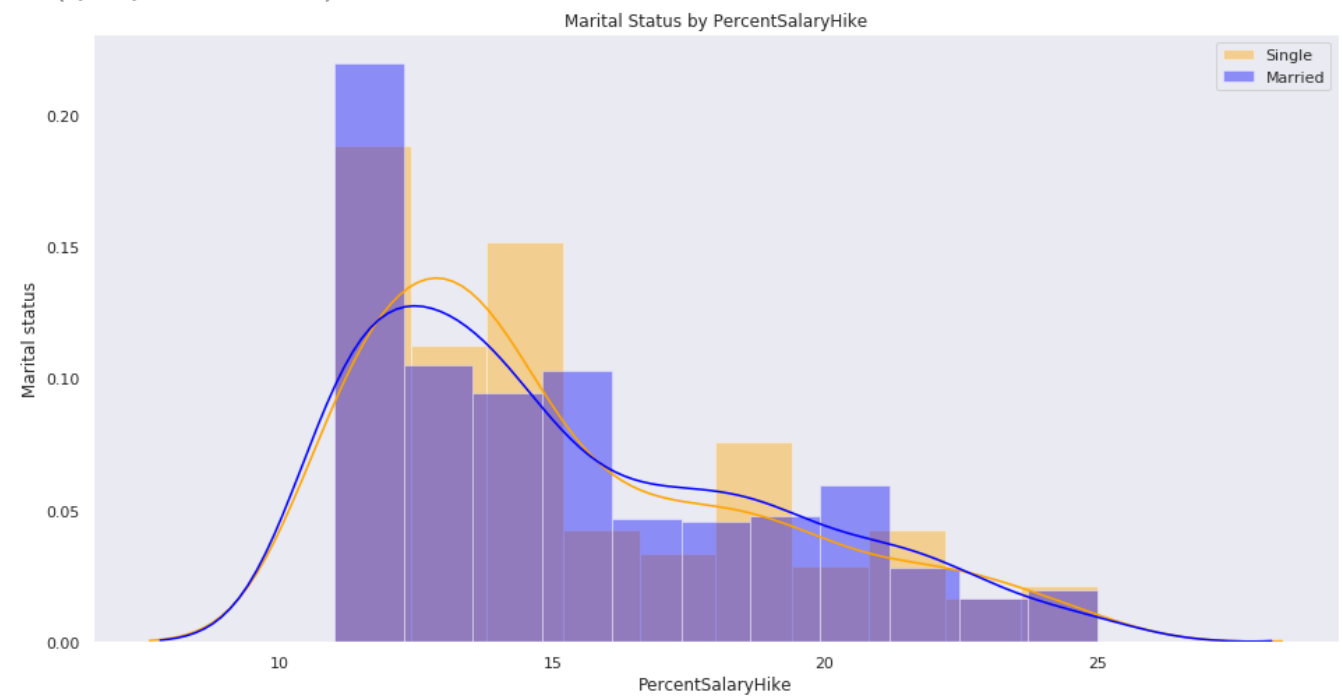

Text(0, 0.5, 'Marital status')

Marital Status by Monthly Income

Marital Status With Monthly Income
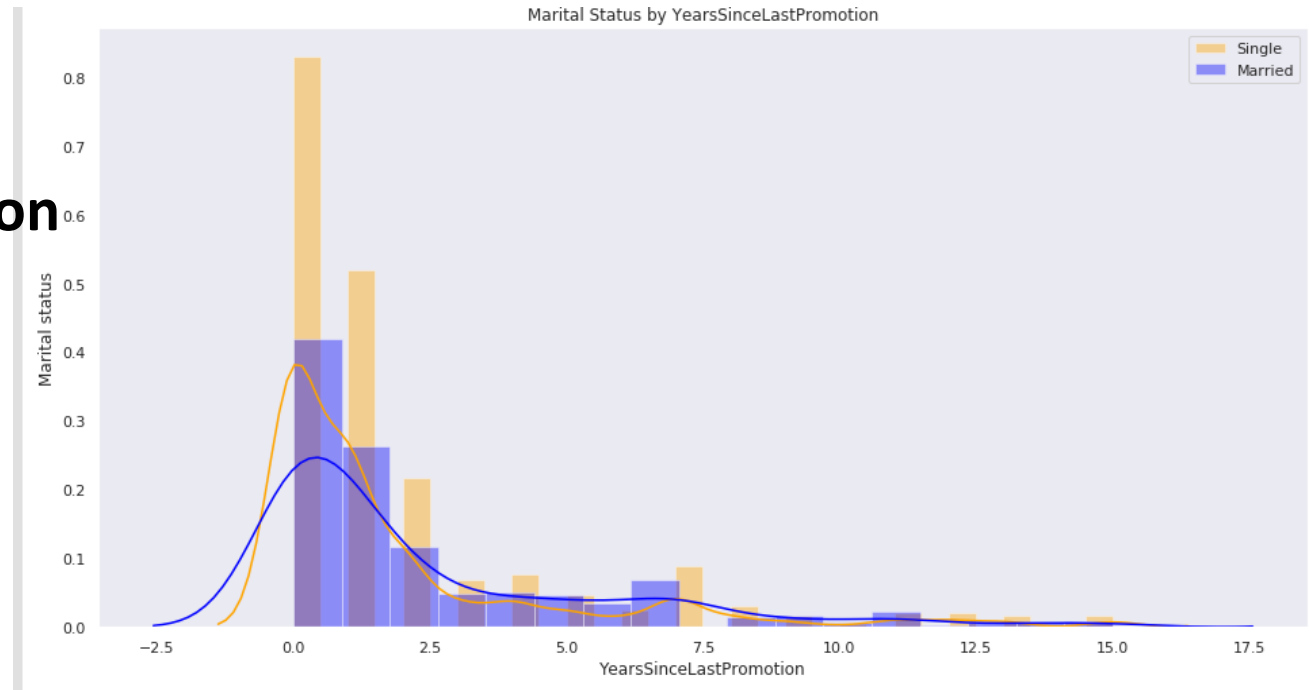
Relationship Satisfaction
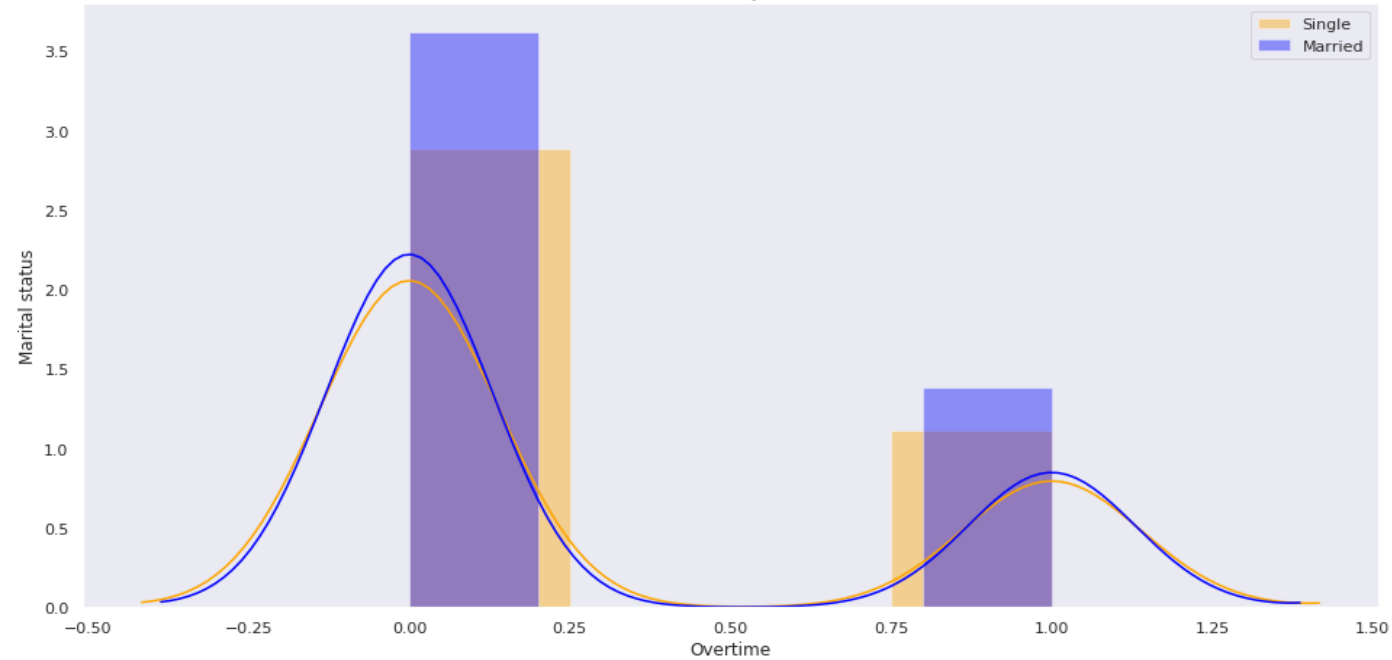
Work-Life Balance
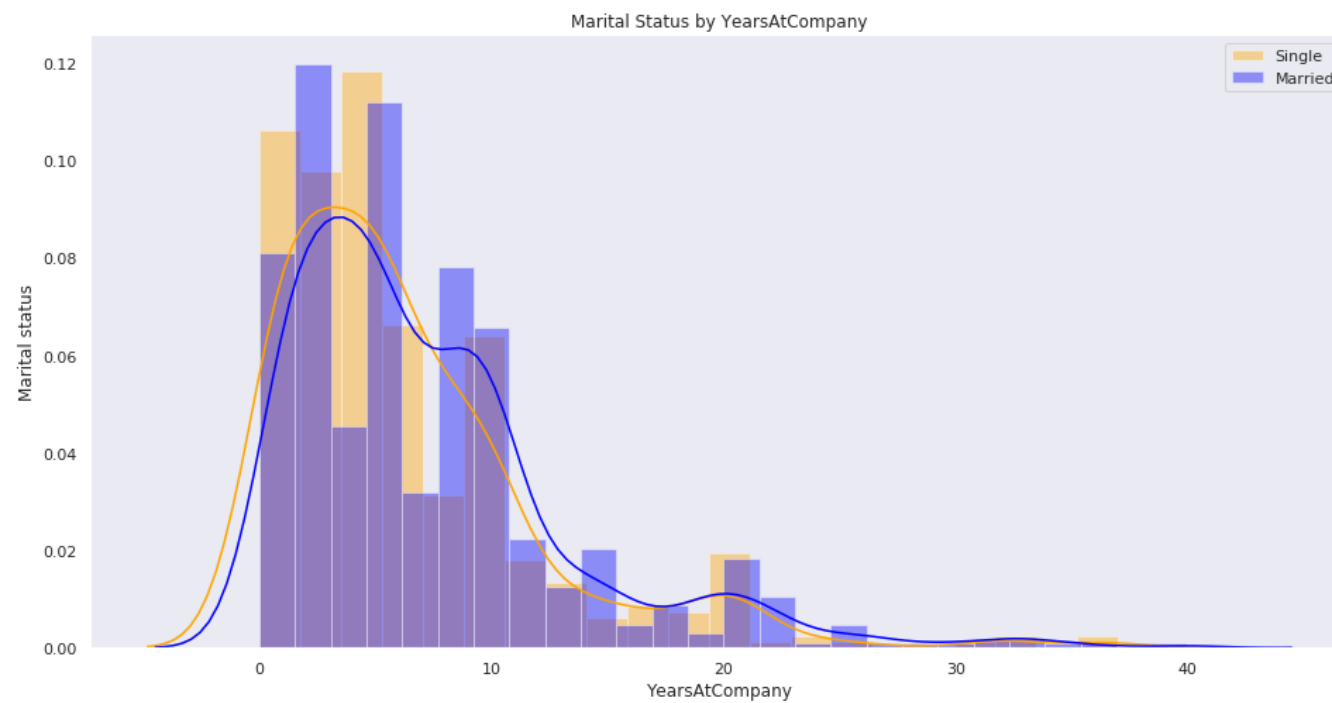
Percent Salary Hike

Years Since Last Promotion

Overtime

Years At Company

ANOVA

- Are there significant differences in means between the single vs married with respect to monthly income?

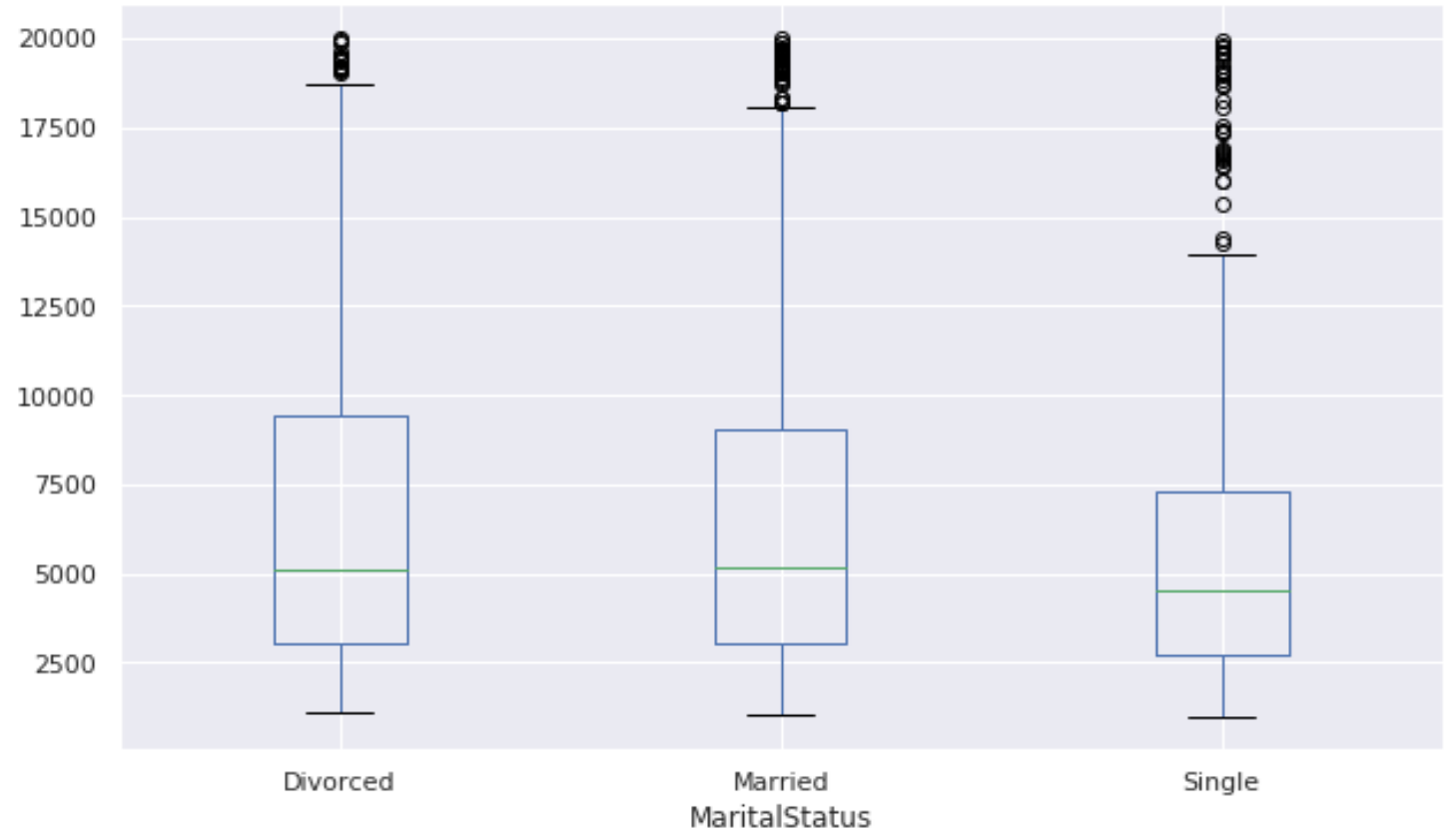**F_onewayResult**(Statistic=5.9, pvalue=0.00279)

Observations

CONTRIBUTING FACTORS

Monthly Income
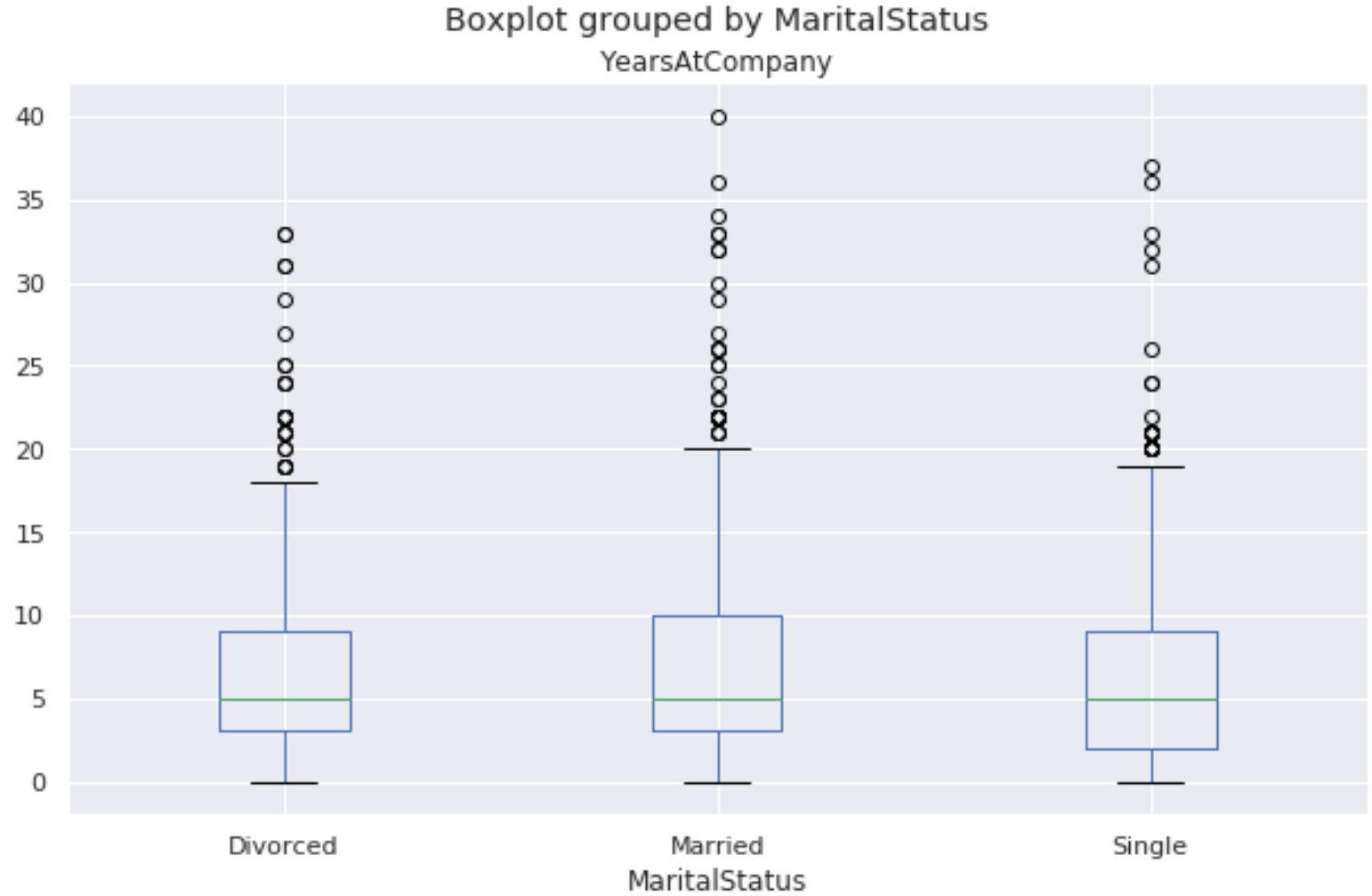
Percent Salary Hike

Years at company

Boxplot grouped by MaritalStatus
MonthlyIncome

Observations

Generally, people at the married status appeared to slightly have worked more years.

Boxplot grouped by MaritalStatus
YearsAtCompany

Conclusion and Recommendations

- Indeed Attrition Rate is higher among single vs married populations.

- Statistically significant differences in means between the 2 groups.

- Difference in attrition rate inadvertently related to other factors like years spent at company, salary increase, monthly income.

- Good example of a case where taking results at face value without digging into underlying statistics may be misleading.

Thanks

谢谢

Gracias