Methodology

- Preprocessing data
- PCA
- Classification model to predict binary response class
- Regression model to predict profit on instances where response is true
- Market only to those whose profit >70

Steps followed

- Preprocessing the input data

1)Object to Categorical
2)Codes for Categorical variables
3)Impute missing values (Using mean)
4)Dummy variables for categorical variables
5)Standardization of variables

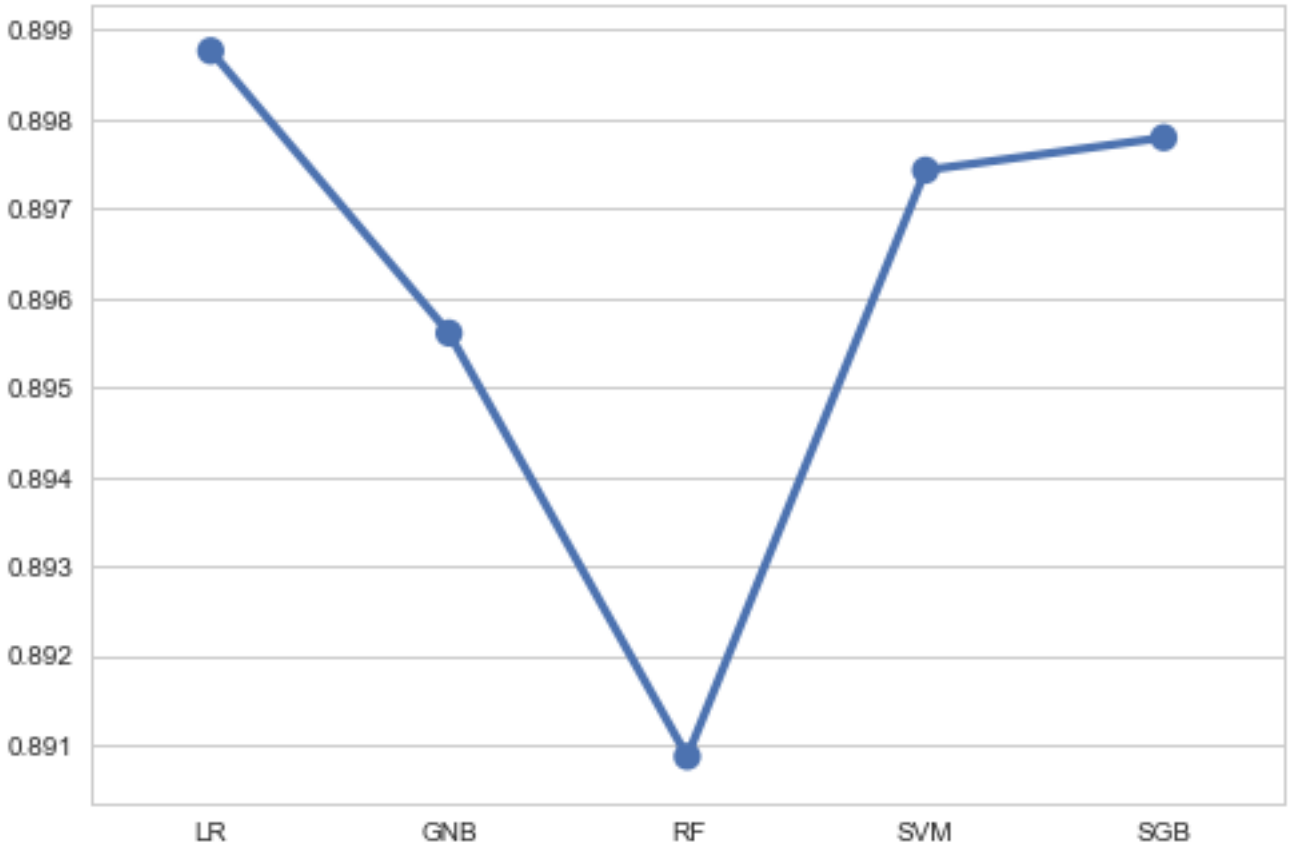
- PCA to to get variables with high variance

Final models

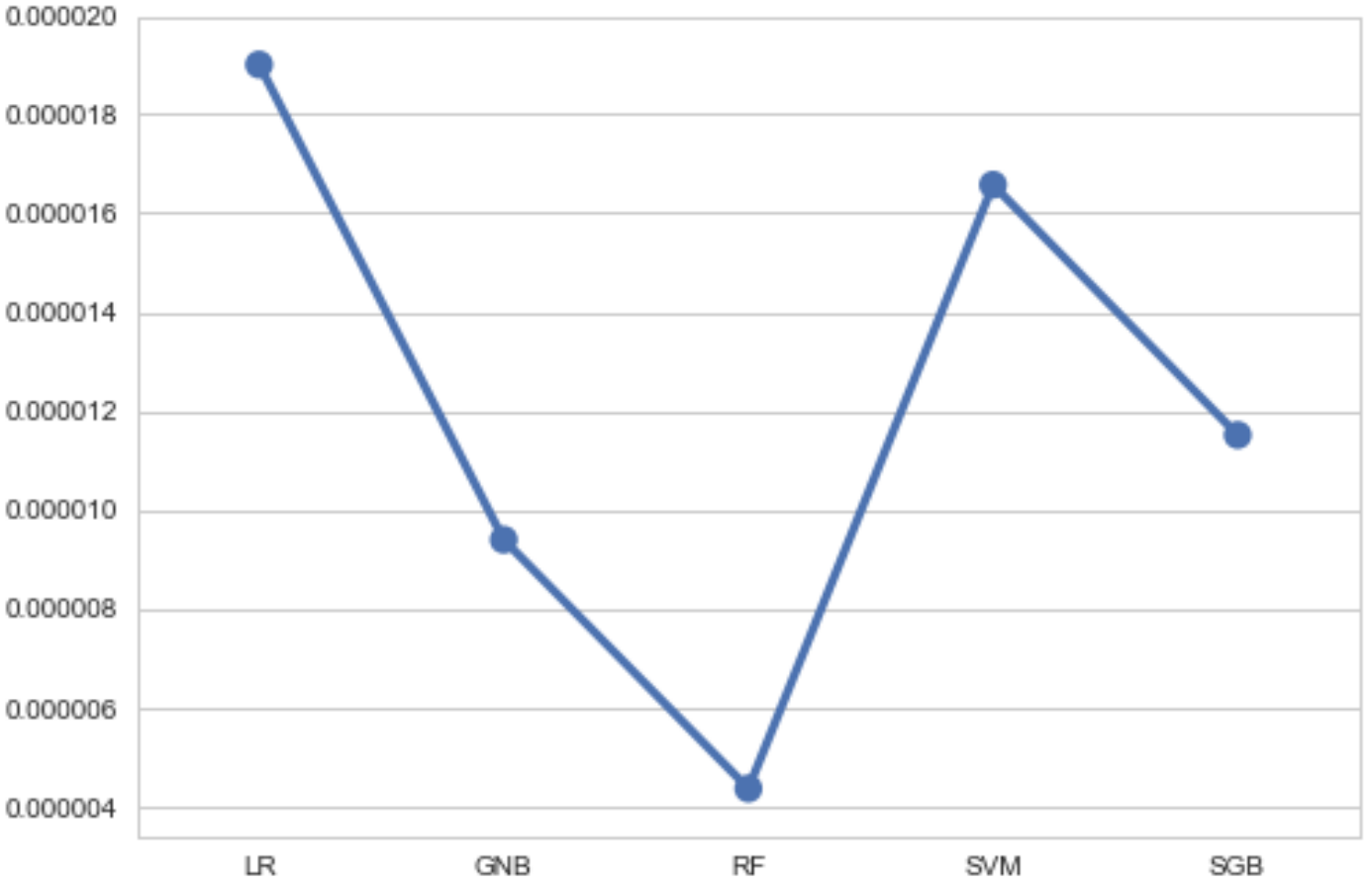
- Models tried for classification

1) Logistic regression
2) Naive Bayes
3) Random Forest
4) SVM
5) Gradient Boosting
6) Gradient Boosting used for classification task
7) Cross Validation Accuracy: 0.901 , CV Variance: 0.0000143
8) Logistic regression used for predicting profit
9) CV Accuracy: 0.751

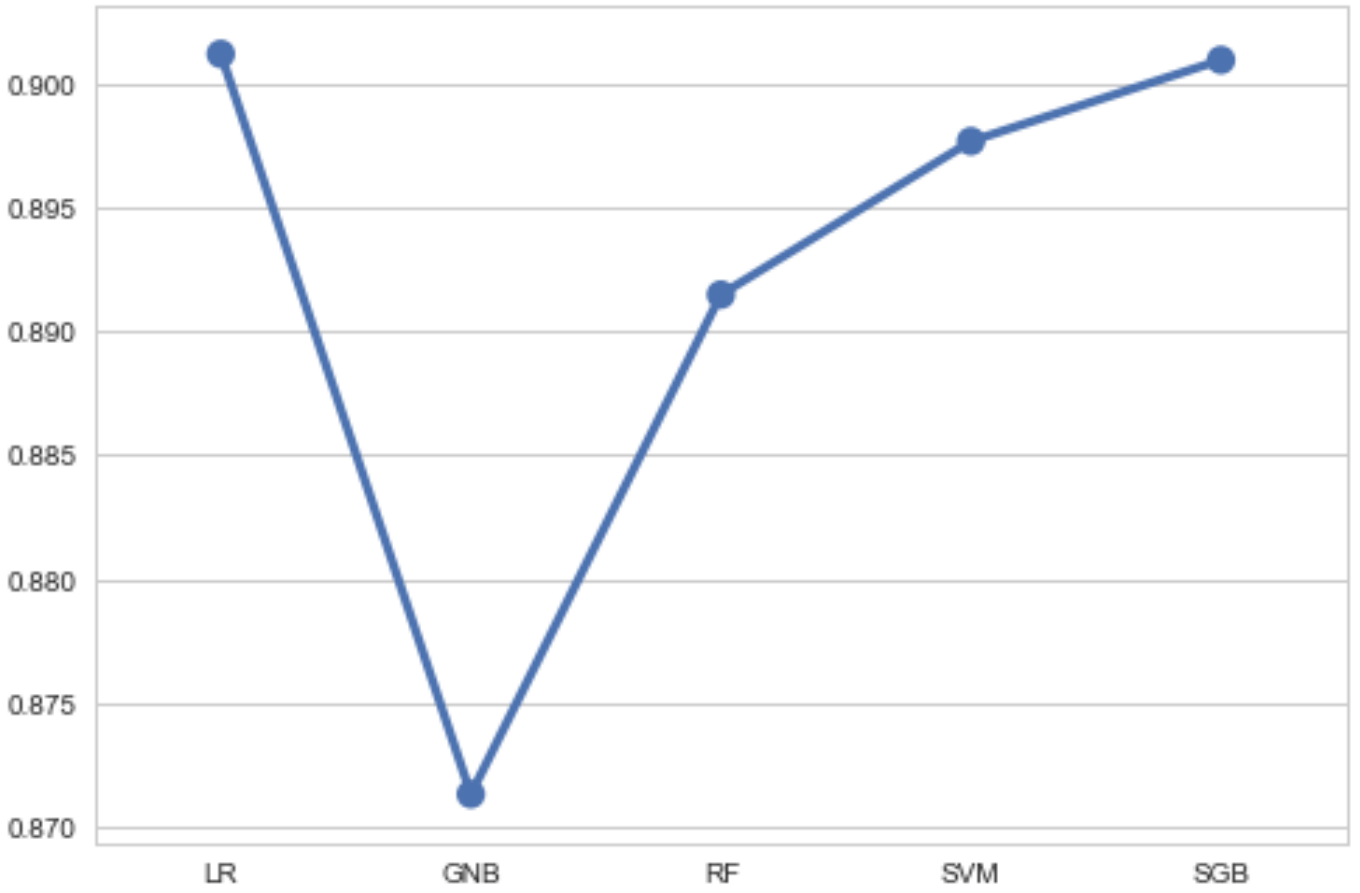
mean_acc plot with pc=12



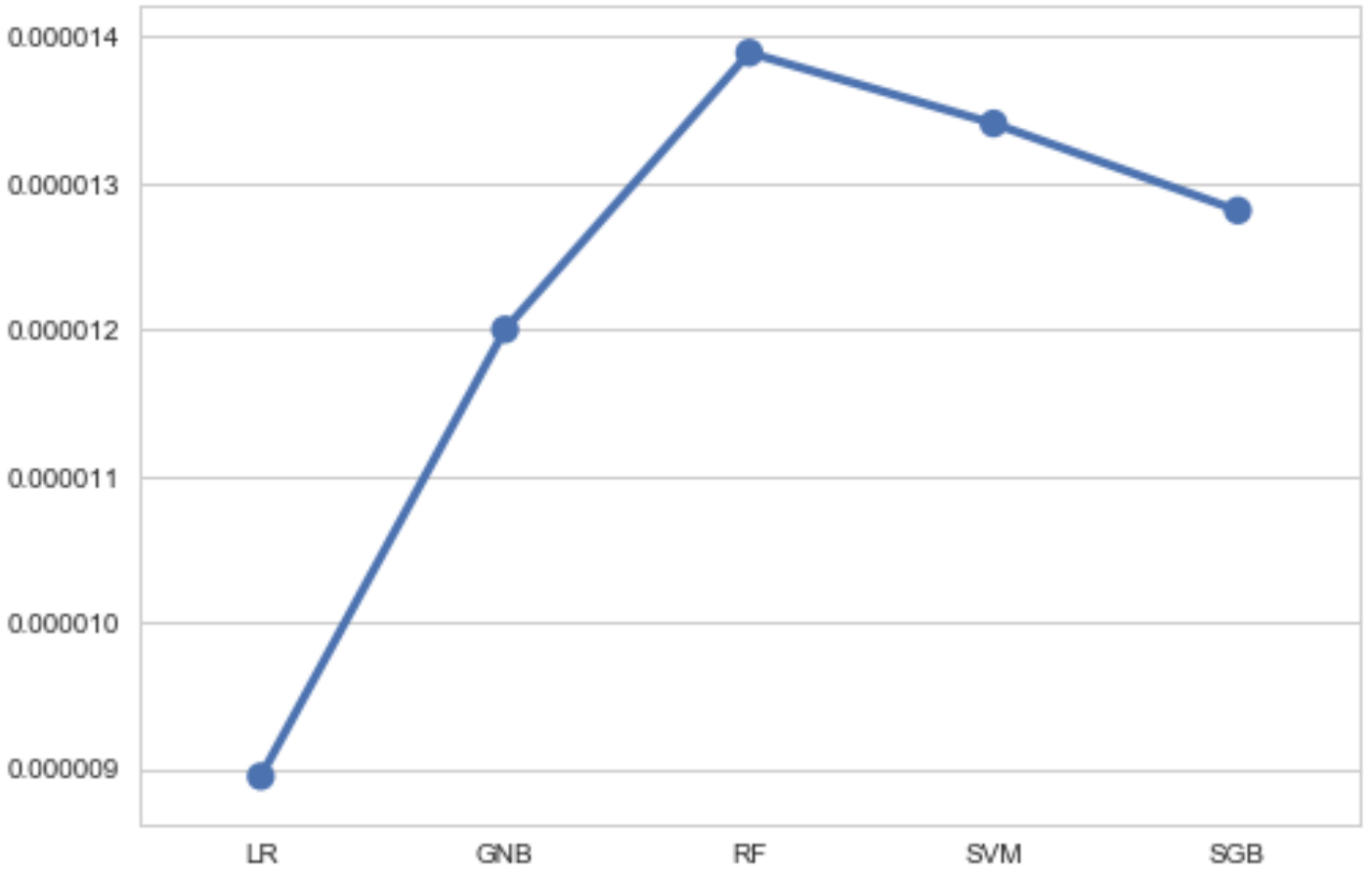
Variance plot with pc=12

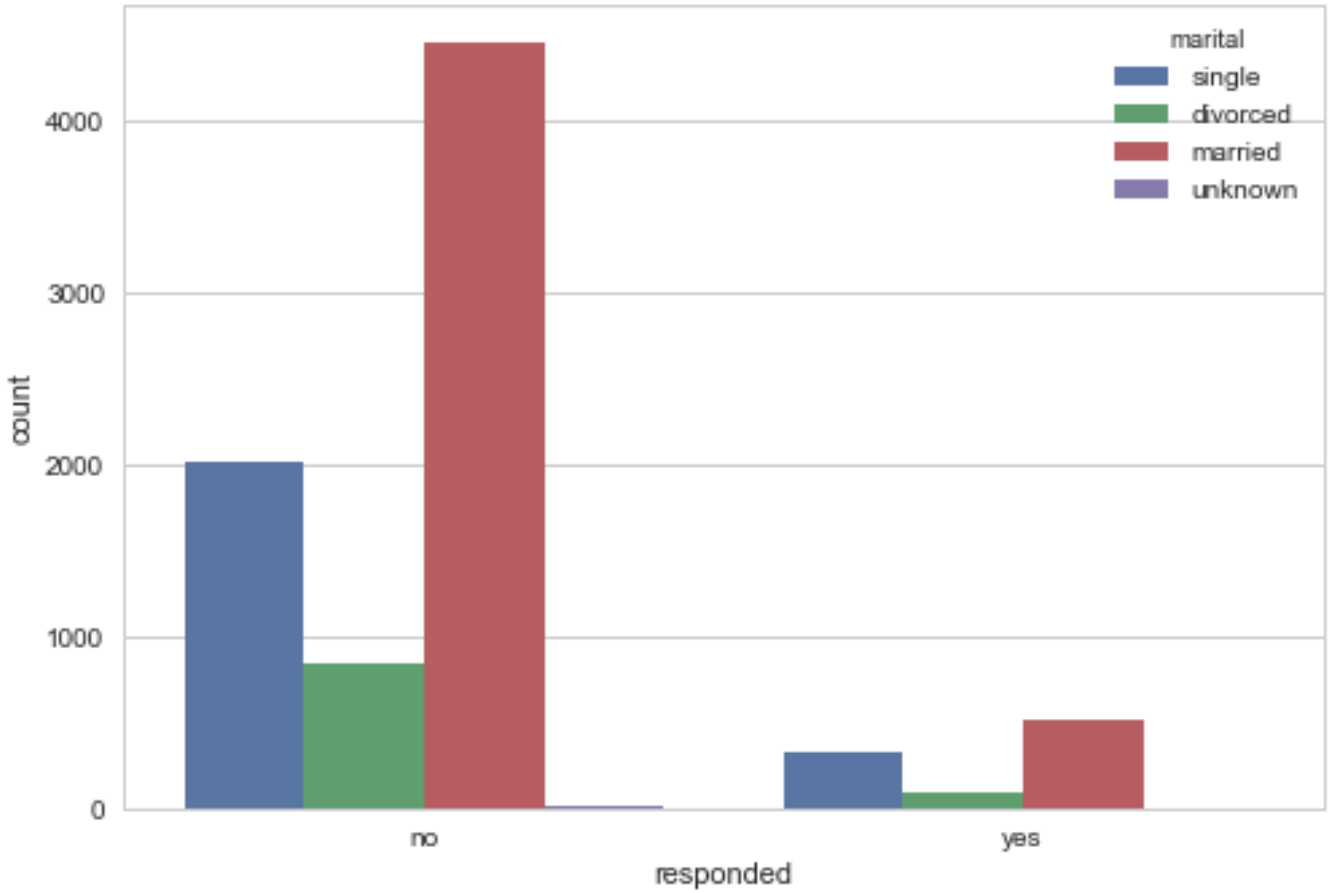


mean_acc plot with pc=18



Variance plot with pc=18

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divorced
married
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2000
1000
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count
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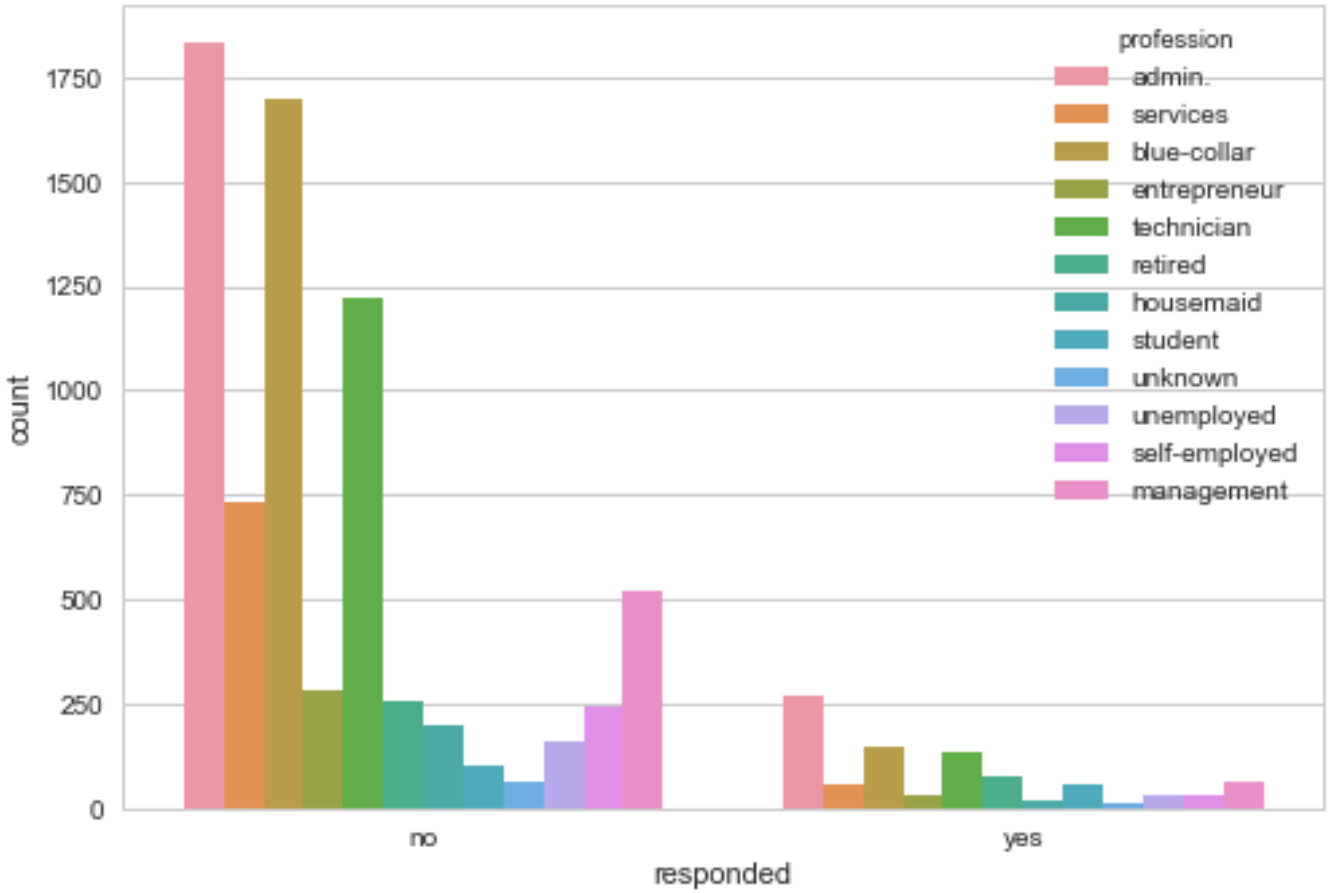
yes
responded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entrepreneur
technician
retired
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student
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self-employed
management
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1250
1000
750
500
250
0
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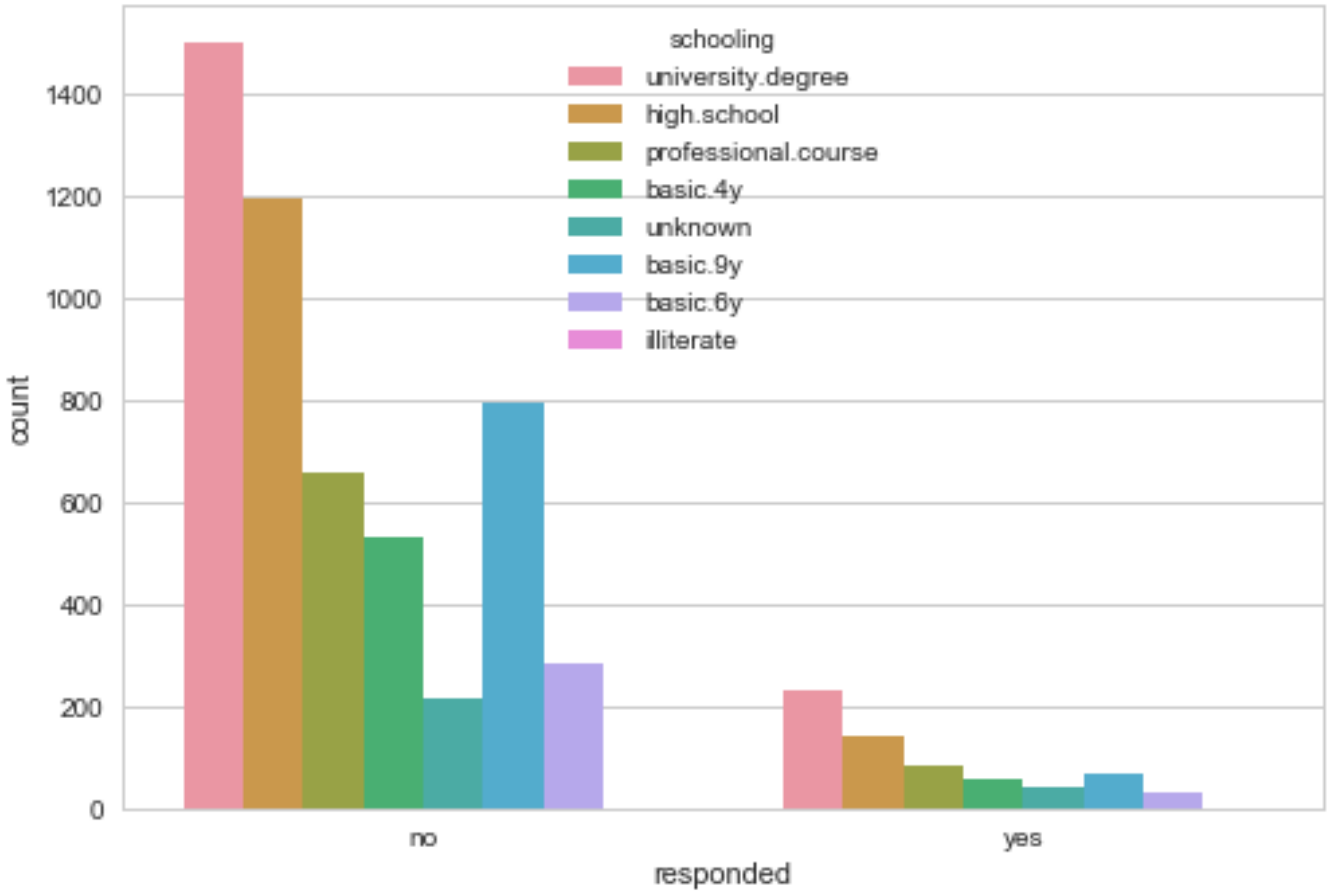
yes
responded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high.school
professional.course
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basic.6y
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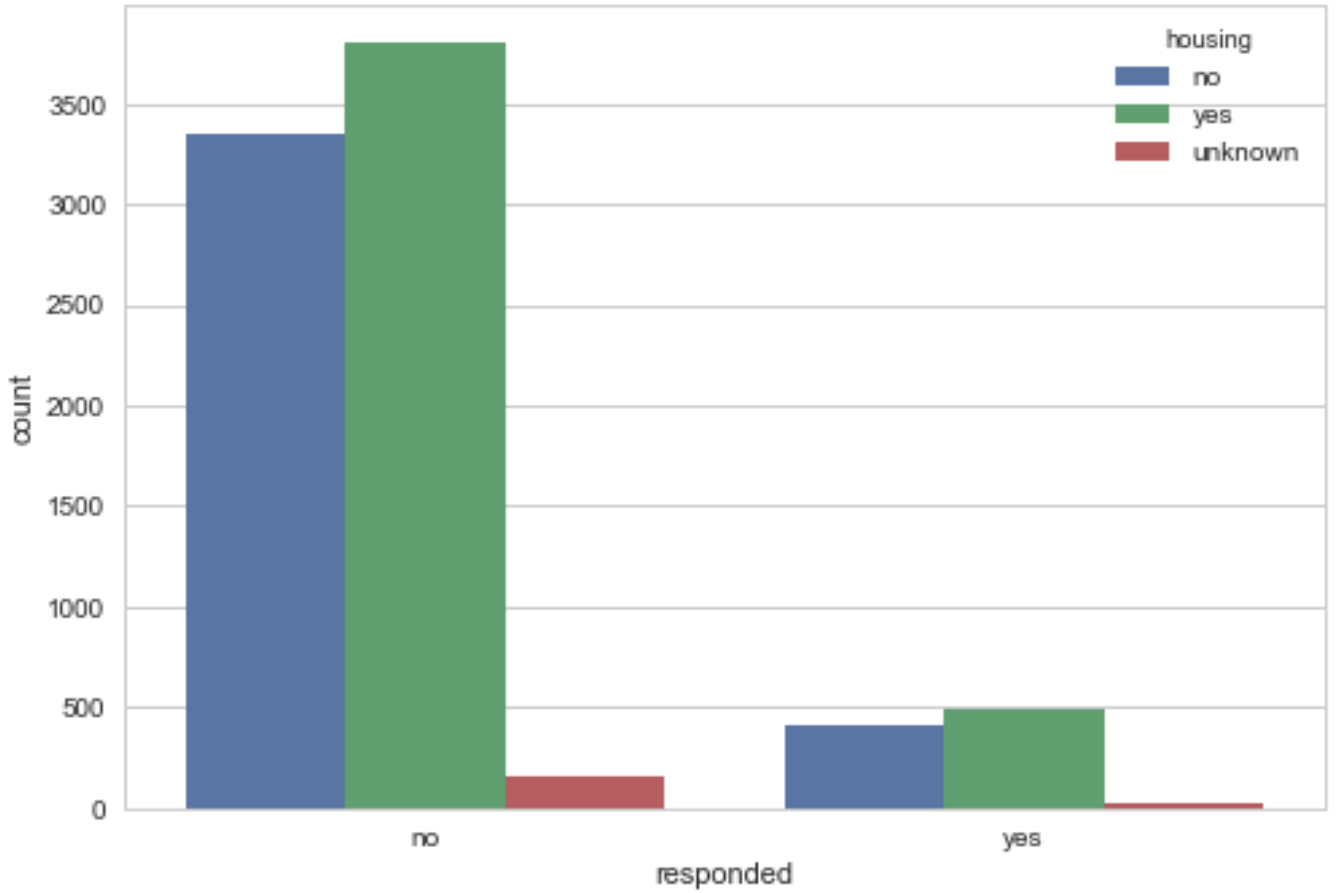
1200
1000
800
600
400
200
0
count
no
yes
responded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2500
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1500
1000
500
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count
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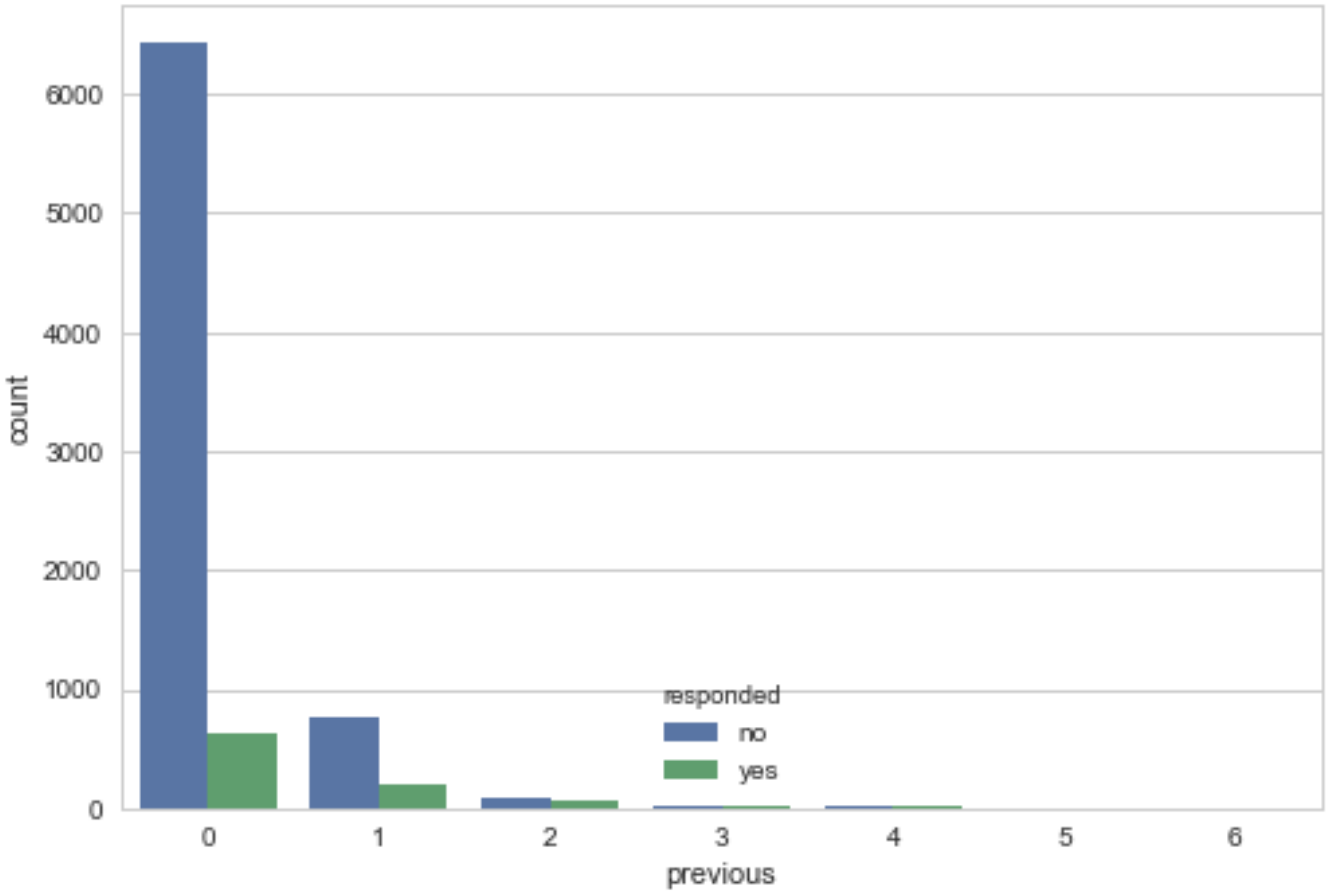
yes
responded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count
responded
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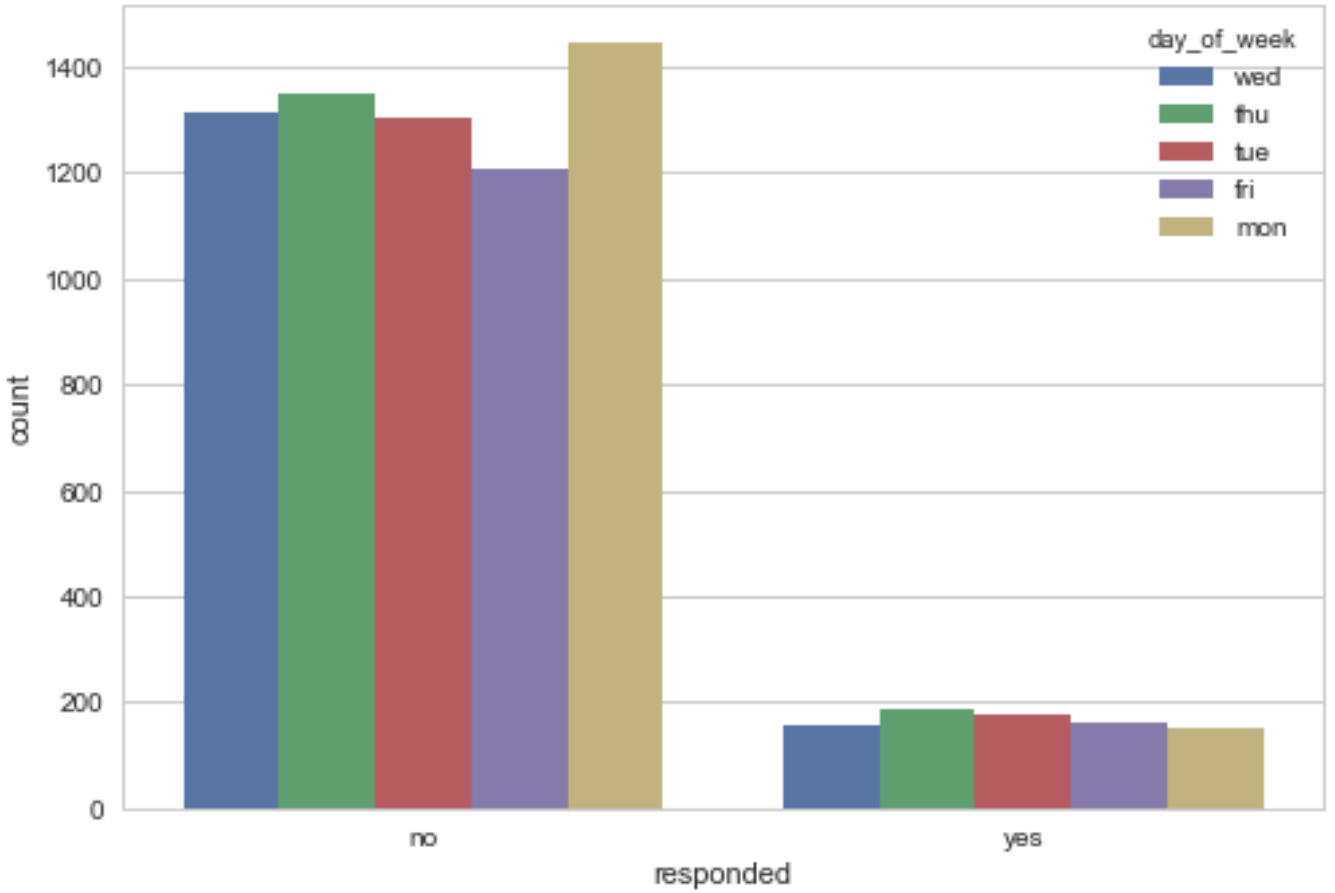
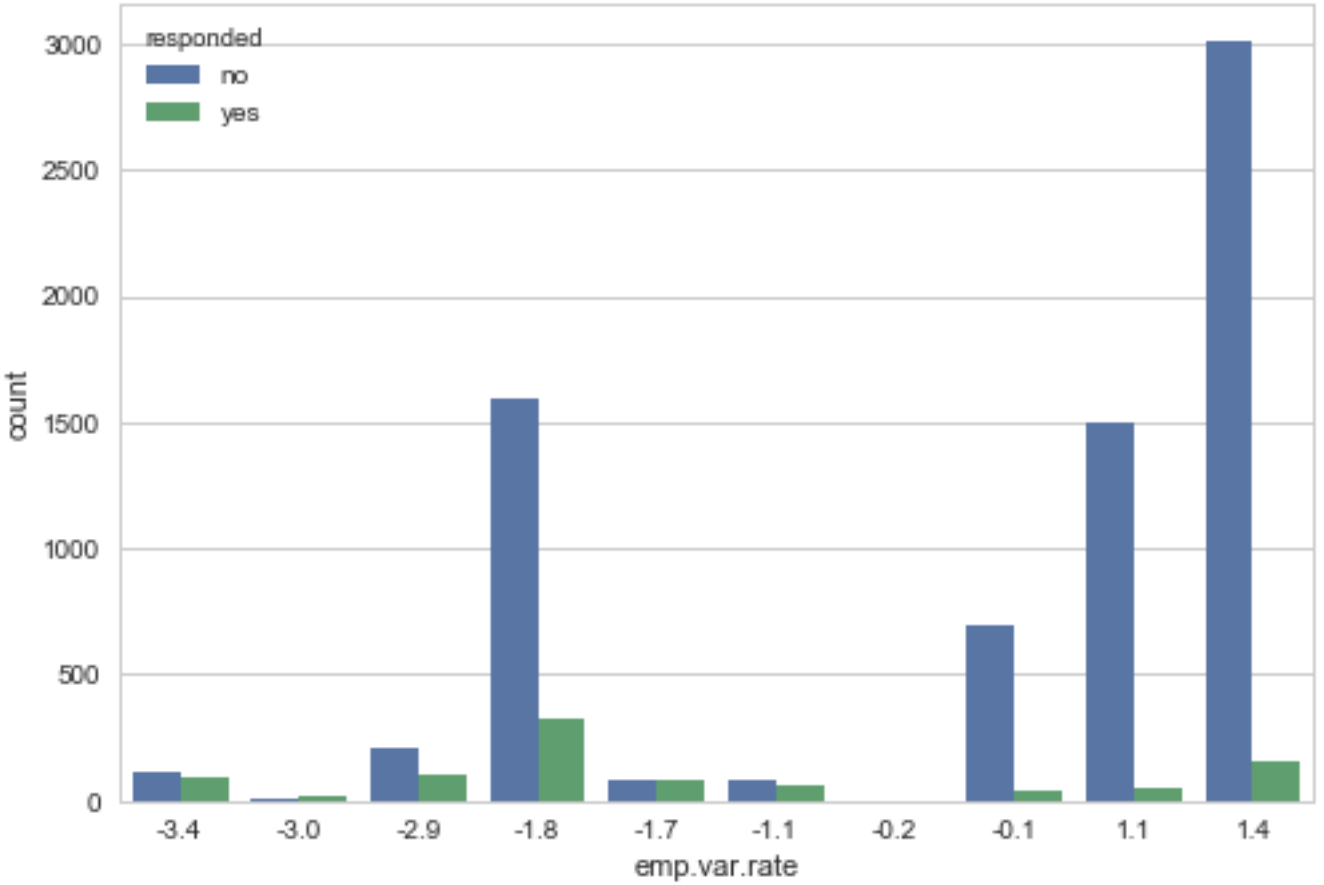
yes
0
1
2
3
4
5
6
previous


day_of_week
wed
thu
tue
fri
mon
1400
1200
1000
800
600
400
200
0
count
no
yes
responded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2500
2000
1500
1000
500
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-1.1
-0.2
-0.1
1.1
1.4
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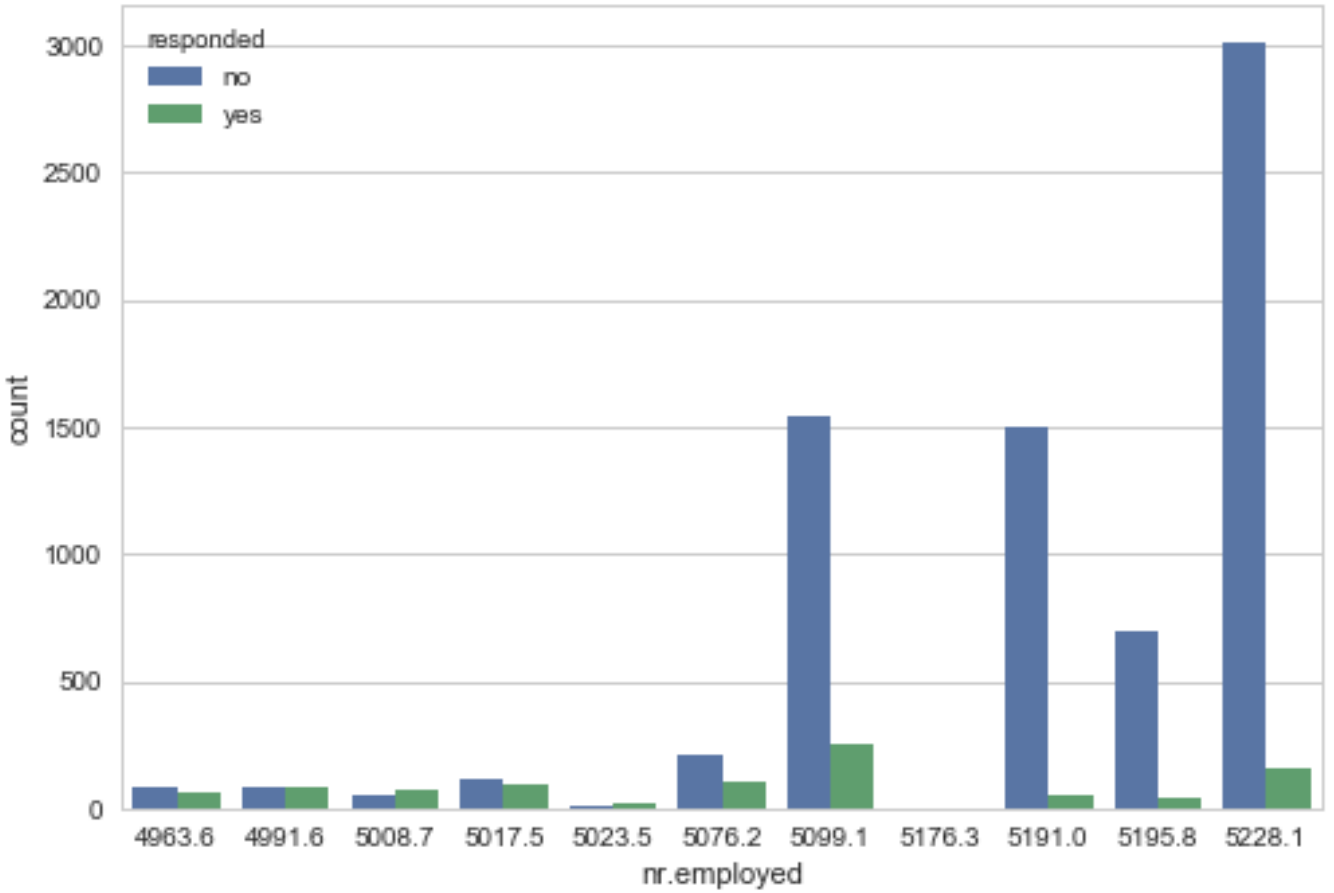
responded
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2500
2000
1500
1000
500
0
count
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5017.5
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5076.2
5099.1
5176.3
5191.0
5195.8
5228.1
nr.employed