DATE-A-SCIENTIST

Machine Learning Fundamentals

Justin Haut

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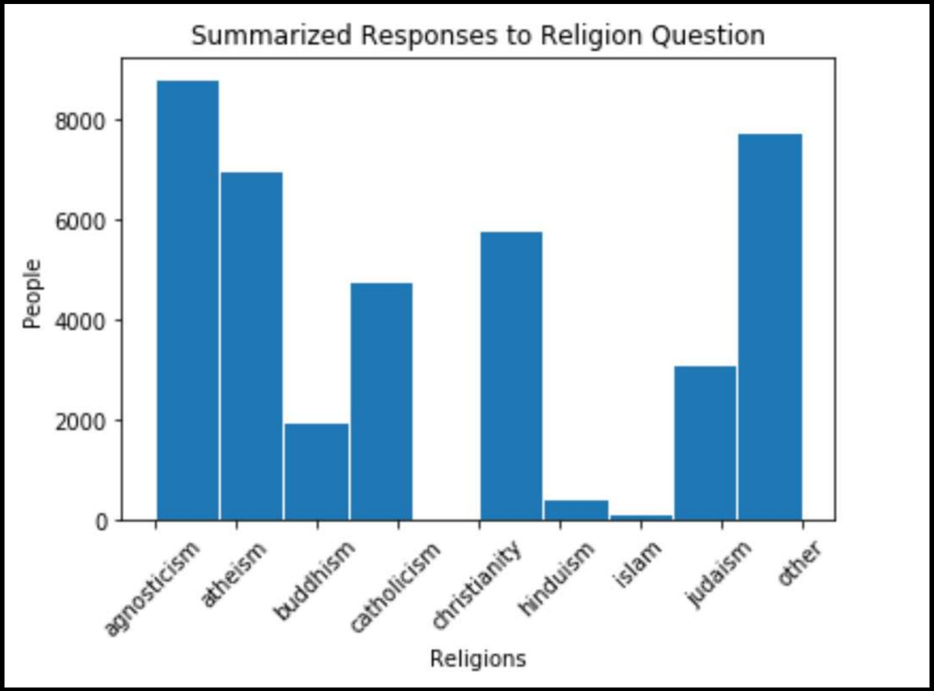
QUESTION TO ANSWER

Classification Question

- Can we predict which religion a person may be based on how much they—
  - Drink –NaN’s converted to: ‘maybe so and maybe not’
  - Smoke – NaN’s converted to: “what momma don’t know don’t hurt her”
  - Use drugs – NaN’s converted to: “experimented”

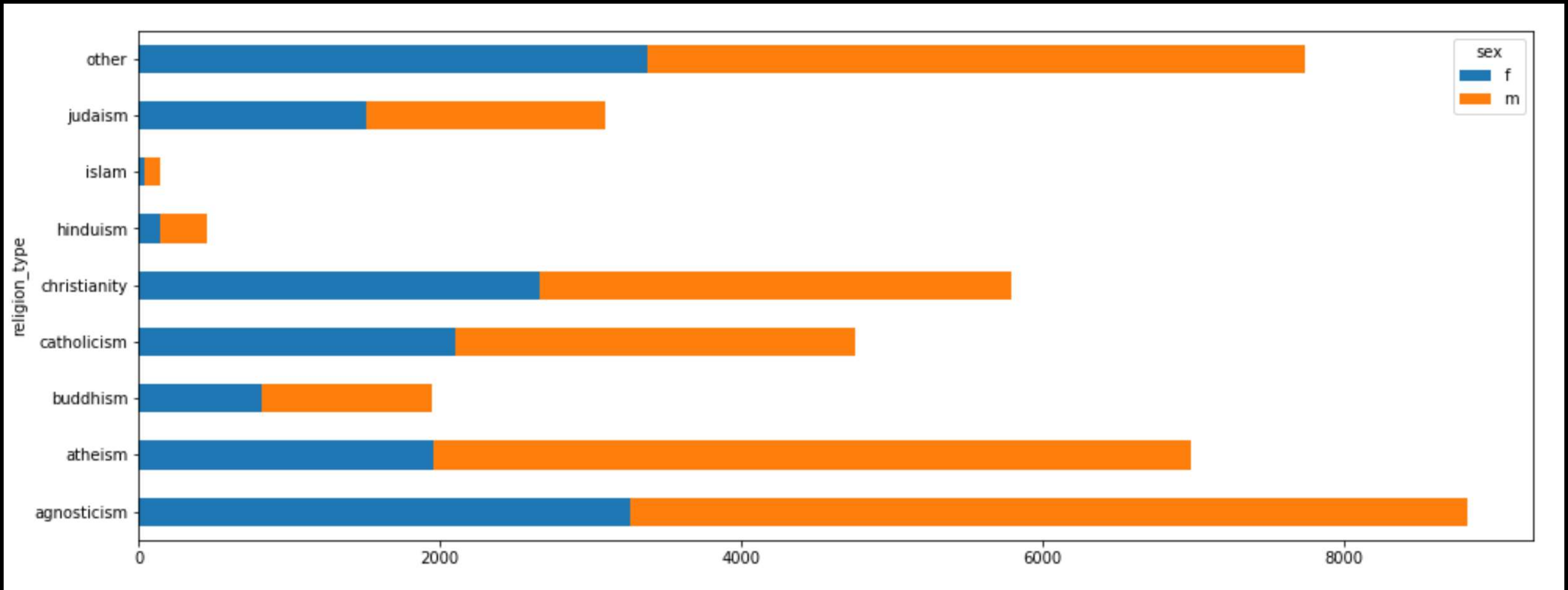
DATA EXPLORATION - RELIGION CONDENSED

- This graph depicts the spread of responses users chose as their religion.
- I ignored intensity/seriousness of practice, which, in hindsight was maybe not the best idea.



DATA EXPLORATION - RELIGION BY SEX

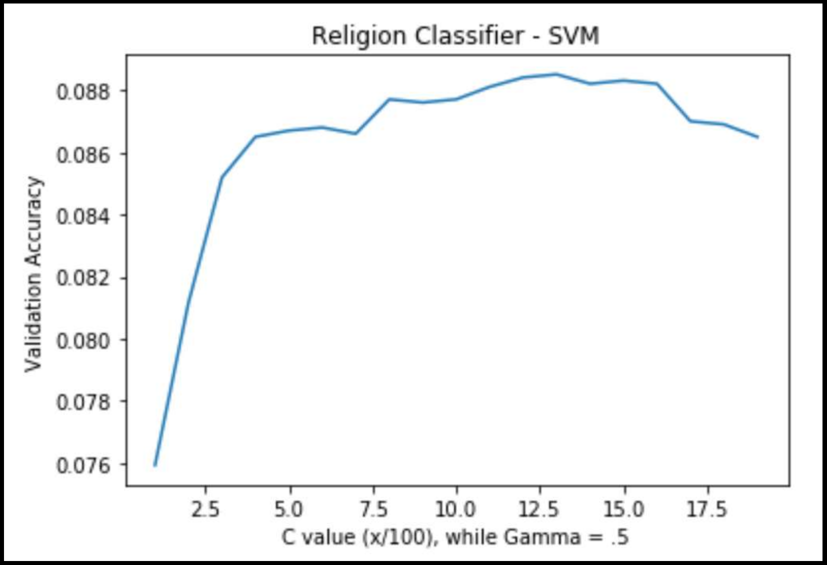
- This graph shows the break out between what male and female users chose as their religion.

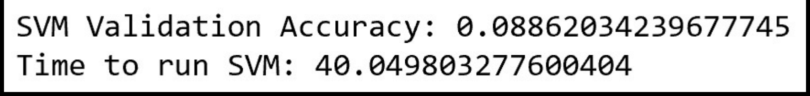


NEW COLUMNS CREATED

- Religion question columns:
  1. Created ‘religion_type’ by taking the first word from each answer choice.
     - df.religion.str.split(n=1).str[0]
  2. Created ‘religion_vals’ by mapping each unique item from religion type to an arbitrary number. In this case, in order of popularity rank.
     - df.religion_type.map({'agnosticism':10,'other':9,'atheism':8,'christianity':7,'catholicism':6,'catholicism':5,'judaism':4 ,'buddhism':3,'hinduism':2,'islam':1})
  3. I also created values column mappings for Drugs, Drinks, and Smokes.

Support Vector Machine
C = .125, Gamma = .5





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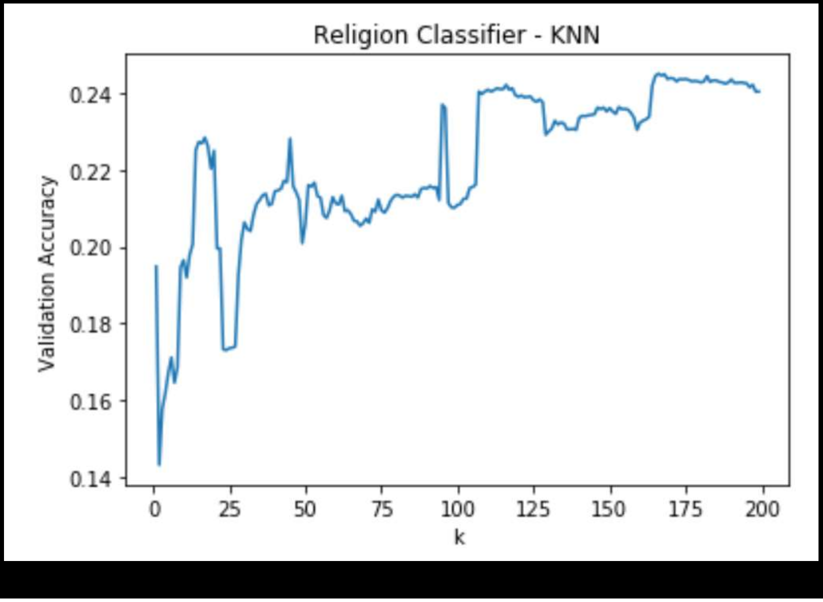
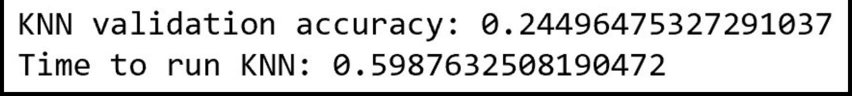
SVM Validation Accuracy: 0.08862034239677745
Time to run SVM: 40.049803277600404
```

K-Nearest Neighbors
K = 166





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KNN validation accuracy: 0.24496475327291037
Time to run KNN: 0.5987632508190472
```

CLASSIFICATION CONCLUSION

Classification Question – Religion and Temptations

- Looking at the results between SVM and KNN it seems that while KNN has a 24% accuracy rate, I have a feeling this is because there are 5 top religions selected. 1/5.
- SVM on the other hand has an 8.8% accuracy, which seems more realistic.
- It would be interesting to follow up on this question by:
  - Breaking the dataset into age groups
  - Breaking the dataset into male and female and then looking for classification
  - Only using those users who are strict about their religion.
- Data that would be interesting to have is if there was a drug breakout to see if those who take, say, psychedelics may trend toward certain religions.

GOING FORWARD

- I plan to:
  - Get better with pandas by playing with public datasets
  - Read up on Scikit-Learn’s documentation
  - Sign up for a Codecademy Pro membership!

THANKS FOR YOUR TIME AND FOR CREATING THIS COURSE! ☺

THE END