

Every Customer Counts ?

How to maximize the use of your customer and sales data

Simon Lau
01/20/2020

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School and Pool for Digital Talent

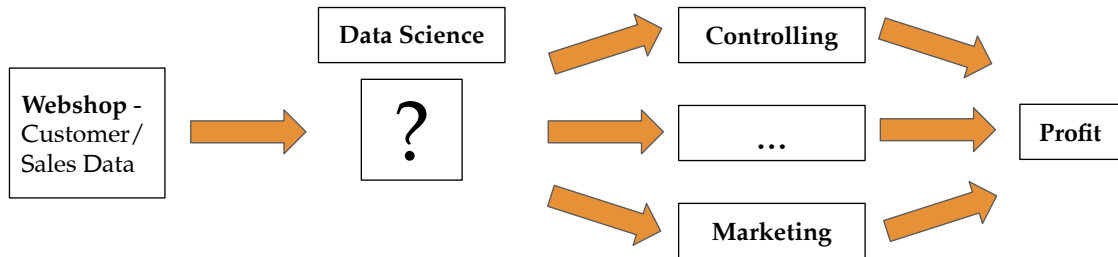
images:

<https://www.gruenderkueche.de/wp-content/uploads/2017/08/online-shop-gruenden-in-6-schritten-einen-eigenen-webshop-eroeffnen-anleitung.jpg>
[4063 × 1018](#)

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Problem Statement



Business Value

- Give the means for Business Strategies
- Know your Customer better
 - Value of each
 - Bind them to you
- Predict future sales and customer behaviour

Data Exploration



image:

<https://depositphotos.com/stock-photos/man-with-shovel.html>

Data Exploration



Data Exploration

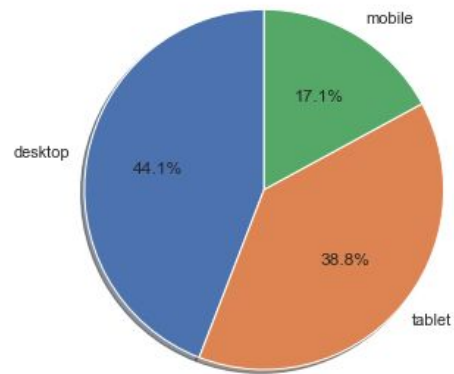





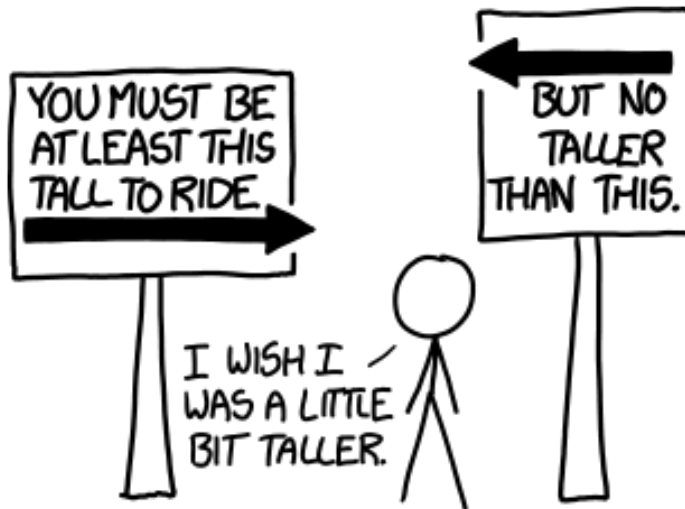


image:
[Kayako-Customer-Retention-Strategies.png](#)

Sample Customers

	A	B	C
			
Revenue:	87	713	5589
Purchases:	1	9	52

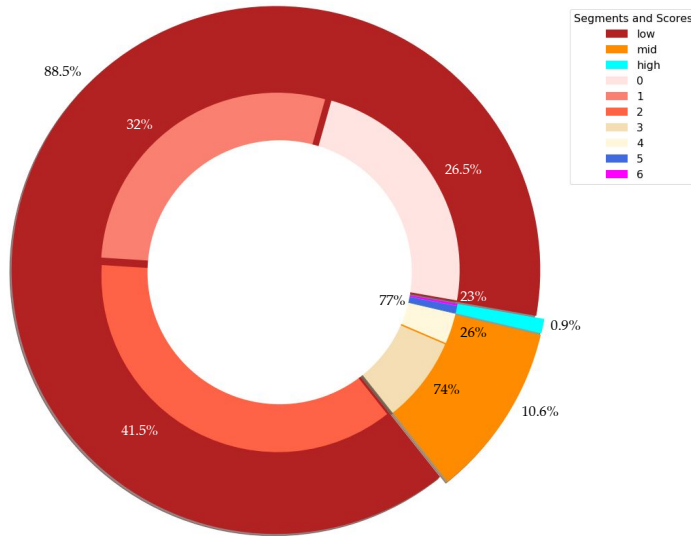
Customer Segmentation



Customer Segmentation

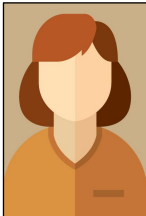
- Clustering with K-Means
- RFM Method
 - Recency, Frequency, Monetary Value
- Calculate Score

Customer Segmentation



Sample Customers

A



Revenue:

87

Purchases:

1

Score/Value:

2/low

B



713

9

4/mid

C



5589

52

6/high

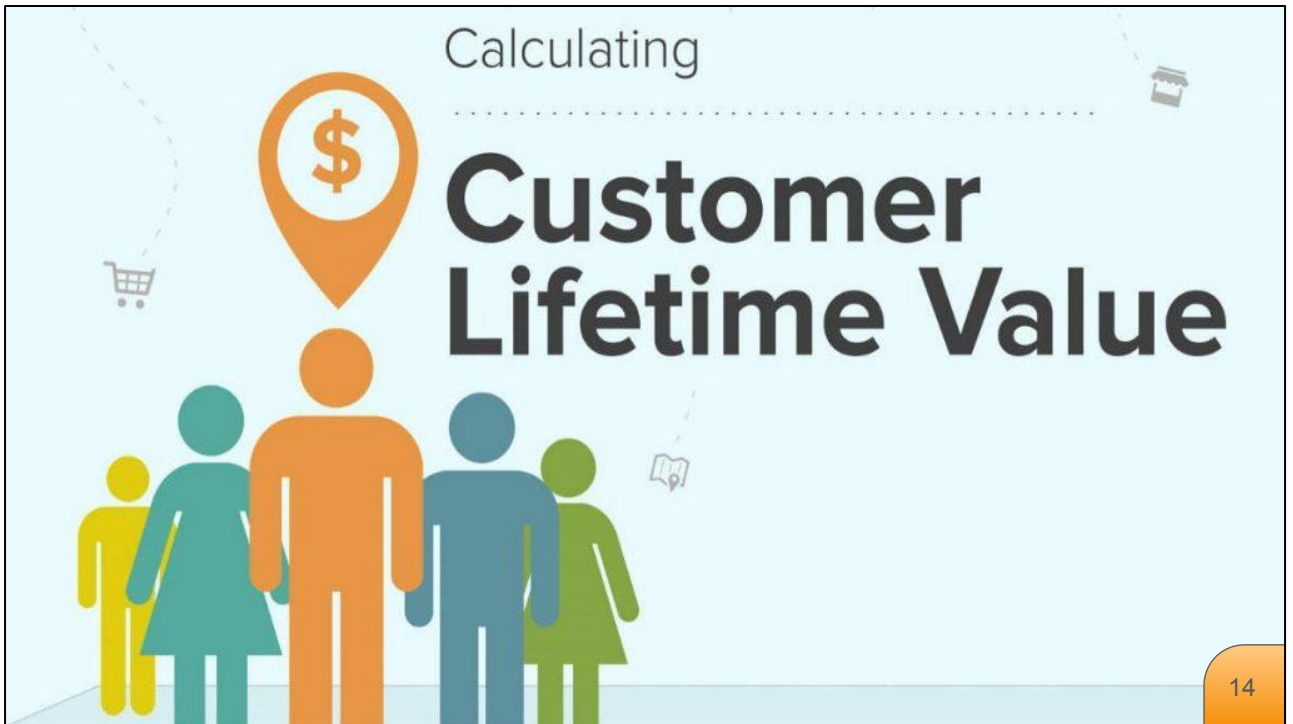





image:

<https://funnelsbuilder.com/great-ways-to-increase-customer-lifetime-values/>

Customer Lifetime Value

- Lifetimes package
- Combination of RFM and statistical Prediction Models
- Predict CLV
- Predict Number of Purchases in the next year

Sample Customers

	A	B	C
			
Revenue:	87	713	5589
Purchases:	1	9	52
Score/Value:	2/low	4/mid	6/high
CLV:	18	345	2591
Pred. Purchases: (1 year)	0.2	4.5	24

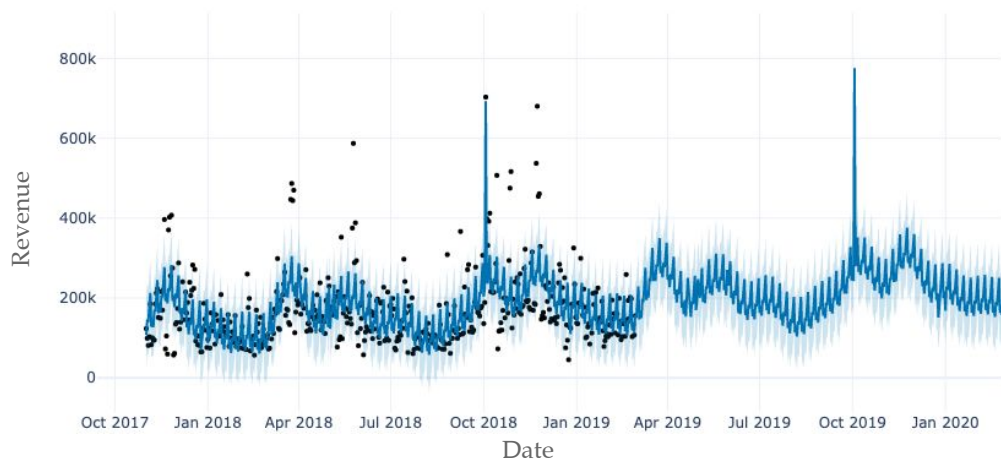
Sales Prediction



image:

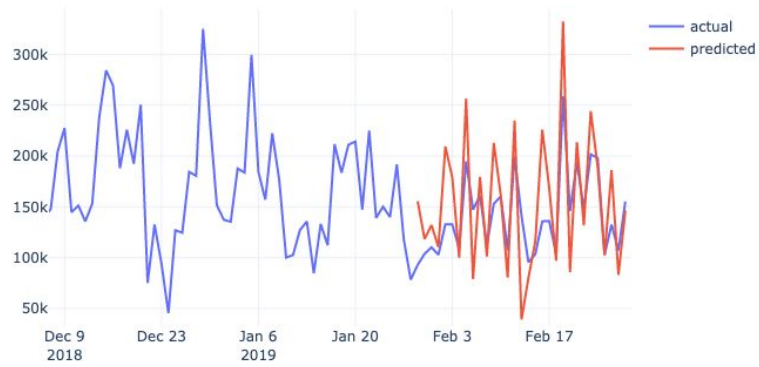
<http://www.democracydelivered.com/2017/07/25/the-human-experience-a-glimpse-into-our-future/>

Prophet



Keras

Sales Prediction



Conclusion

- Built working models:
 - Customer Segments
 - Lifetime Value
 - Sales Prediction
 - Churn Prediction (no coherent results)
- Extensive EDA

Future Work

- Get additional Data
 - to fix inconsistencies
 - to be able to run new models
- Improve Neural Network and predict future
- Build a proper Churn model
- Predict next purchase day for customers
- A-B Testing

Questions ?

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Thank you !

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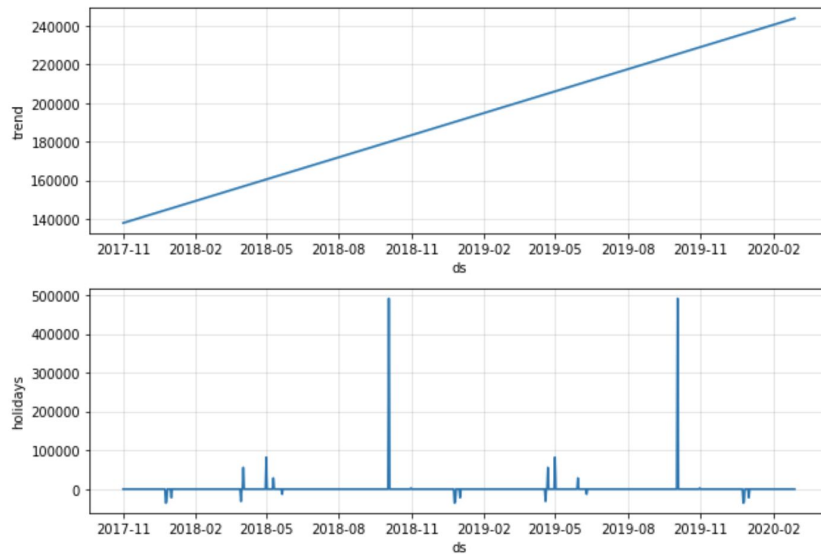
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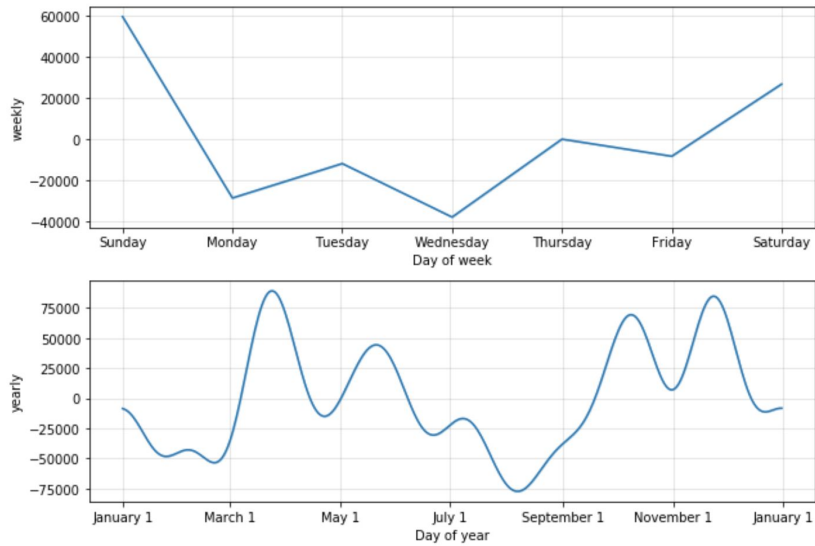
Appendix

- Prophet Graphs
- Additional Keras Plots (different sizes)
- Customer Segmentation
 - Extra Donut Plot
 - Average Values for Segments

Prophet Appendix

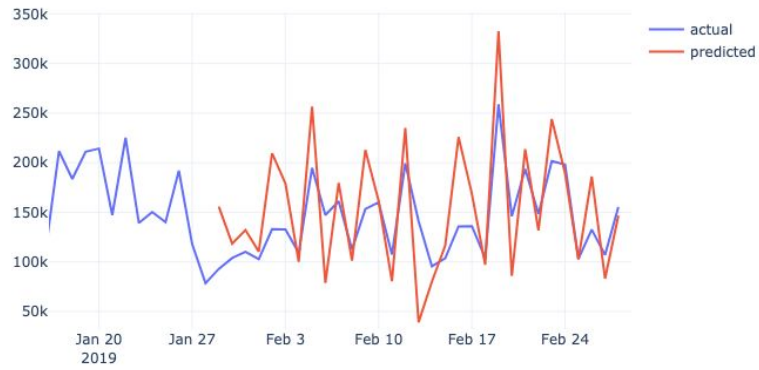


Prophet Appendix

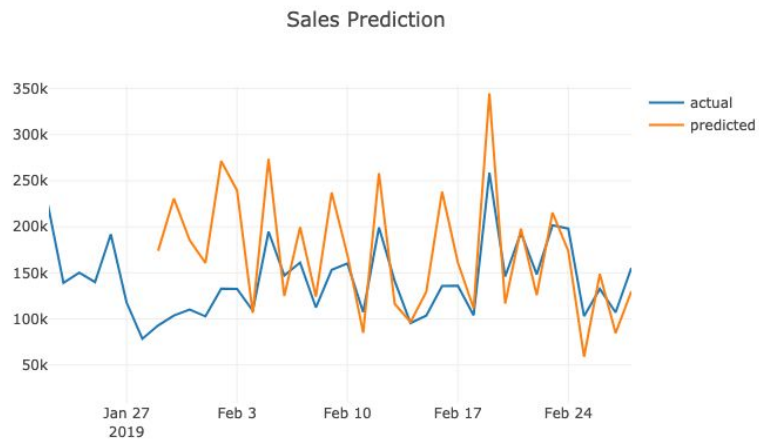


Keras Appendix

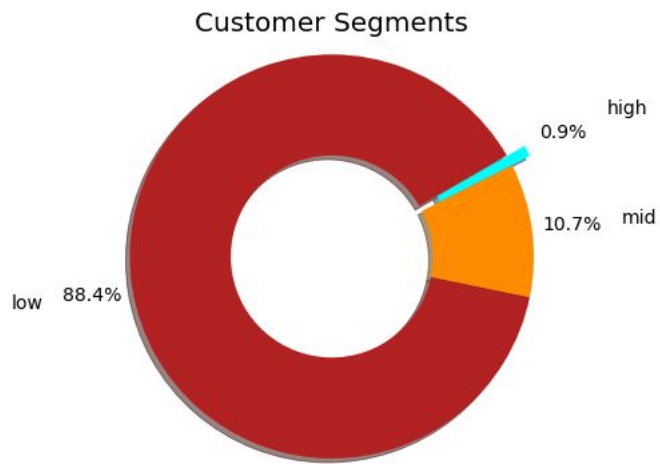
Sales Prediction



Keras Appendix



Customer Segmentation Appendix



Customer Segmentation Appendix

Values by Customer Segment

	revenue			avg_shop_cart	avg_cart_itemcount	total_purchases		recency	frequency	pred_purch	clv
	count	mean	sum	mean	mean	mean	sum	mean	mean	mean	mean
value_segment											
high	5482	1130.678862	6.198382e+06	171.530084	6.022522	8.382342	45952	68.388362	8.382342	2.816609	331.257357
mid	66003	345.106455	2.277806e+07	187.413593	5.941222	2.503341	165228	106.504280	2.503341	0.548503	50.184327
low	551132	95.339794	5.254481e+07	85.092175	3.316983	1.131970	623865	242.922799	1.131970	0.112013	10.186436