IMPERIAL COLLEGE BUSINESS SCHOOL

M.Sc., Business Analytics

Independent Study

Sentiment Analysis of Contact lens to predict sales and improve manufacturing process and quality

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Abstract

In this study we undertake sentiment analysis to study feedback of customers that use contact lenses manufactured by Johnson & Johnson Inc. Contact lenses, as an alternative to normal glasses, are used widely and offers many advantages. It is discreet, not subject to misplacement and offer aesthetic advantages that cannot be matched by normal glasses. However, since the lenses are worn on top of the iris, the quality of glass, the material of glass is quite important for customers to feel comfortable. Thus it is important for manufacturers of contact lenses to understand the sentiment(s) of people wearing these lens. Given the popularity of contact lenses over normal glasses, it is no surprise that there are various companies manufacturing them. There are also various brands of lenses manufactured by the same company in many cases. This study aims to study customer sentiments collected over a period of 10 years, sentiments pertaining to various brands of lenses. The result of the study will be used to see if there are trends and patterns in the uusage of these lenses. More importantly, it will allow the manufacturers of lenses to understand their own manufacturing process based on the sentiments expressed by the customers. We plan to use various machine learning methods to study the customer data and associate sentiments with rating for the product. We will develop a visualization dashboard that will allow managers to analyze slices of data over various vectors including date ranges, keywords and so on. A snapshot of raw data (XLS format) is shown in Figure 1.

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TITLE			RATI COMFORT				REVIEW_DATE		CONS	ORIGINAL_SOURCE		FINAL_PRODUCT_NAME
Acucue 2 Contact Lenses	I have used these lenses for a long time and I have to say that the service from Lens.com is great		NA3	NA3	NA3	Raymond Morgan		21 NAS	NA7	www.lens.com	NAG	Acuruse 2 Contact Lenses
Jear vision		4 out of 5	NA3	NA3	NA3	Marilyn Coy		21 NAS	NA7	www.lens.com	NAG	Acuruse 2 Contact Lenses
omfort		4 out of 5	NA3	NA3	NA3	Bridgett Farner		21 NAS	NA7	www.lens.com	NAG	Acuvue 2 Contact Lenses
asy to use		5 out of 5	NA3	NA3	NA3	Stanley Roberts	11/16/		NA7	www.lens.com	NAG	Acuruse 2 Contact Lenses
boellent		4 out of 5	NA3	NA3	NA3	Yorlene Mesa		21 NAS	NA7	www.lens.com	NAG	Acurus 2 Contact Lenses
last service		5 out of 5	NA3	NA3	NA3	Andrea Brown		21 NA6	NA7	www.lens.com	NAG	Acurus 2 Contact Lenses
ireat brand		5 out of 5	NA3	NA3	NAS	John Towe	11/22/		NA7	www.lens.com	NAO	Acurus 2 Contact Lenses
Sreat experience		5 out of 5	NA3	NA3	NA3	Anonymous	11/9/		NA7	www.lens.com	NAG	Acuvue 2 Contact Lenses
iervice		5 out of 5	NA3	NA3	NAS	Warren Grant	12/15/		NA7	www.lens.com	NAO	Acuvue 2 Contact Lenses
30 HOOHEOHEOHEOHEOH		5 out of 5	NA3	NA3	NAS	kimberlys.	11/21/		NA7	www.contactlensking.com	NAO	1-Day Acuvus Moist90 Pack
O TECOGEOGEOGEOGEO		5 out of 5	NA3	NA3	NA3	kimberlys.	11/21/		NA7	www.contactlensking.com	NAO	1-Day Acuvue Moist90 Pack
Day Acurus Moist 90 Pack		5 out of 5	NA3	NA3	NA3	tamar b.	12/25/		NA7	www.contactlensking.com	NAO	1-Day Acuvue Moist90 Pack
Day Acurue Moist 90 Pack	Comfort, Clarity.	5 out of 5	NA3	NA3	NA3	rick r.		21 NA6	NA7	www.contactlensking.com	NAO	1-Day Acuvue Moist90 Pack
Day Acurue Moist 90 Pack		5 out of 5	NA3	NA3	NA3	Payton B.		21 NA6	NA7	www.contactlensking.com	NAO	1-Day Acuvue Moist90 Pack
Day Acurue Moist 90 Pack		5 out of 5	NA3	NA3	NA3	laura m.	10/30/		NA7	www.contactlensking.com	N40	1-Day Acuvue Moist90 Pack
Day Acurue Moist 90 Pack		5 out of 5	NA3	NA3	NA3	john t.	10/15/		NA7	www.contactlensking.com	N40	1-Day Acuvue Moist90 Pack
Day Acurue Moist 90 Pack		5 out of 5	NA3	NA3	NA3	Sanford D.	11/15/		NA7	www.contactlensking.com	N40	1-Day Acuvue Moist90 Pack
Day Acurue Moist 90 Pack	No cleaning, Easy to use. I forget they are in my eyes. Put in every morning, Remove every night		NA3	NA3	NA3	mary m.	10/13/		NA7	www.contactlensking.com	N40	1-Day Acuvue Moist90 Pack
Day Acuvue Moist 90 Pack		5 out of 5	NA3	NA3	NA3	H.F.	10/15/		NA7	www.contactlensking.com	N40	1-Day Acuvue Moist90 Pack
1 Day Acuvue Moist 90 Pack	Still works fine	5 out of 5	NA3	NA3	NA3	barbarah.	10/4/	21 NA6	NA7	www.contactlensking.com	NA9	1-Day Acuvue Moist 90 Pack
I Day Acuvue Moist 90 Pack	Thanks for fast delivery in busiest season	5 out of 5	NA3	NA3	NA3	jason k.	12/28/	21 NA6	NA7	www.contactlensking.com	NAO	1-Day Acuvue Moist90 Pack
I Day Acuvue Moist 90 Pack	Thanks for speedy delivery - no worries about order lost in the mail.	5 out of 5	NA3	NA3	NA3	joan p.	12/2/	21 NA6	NA7	www.contactlensking.com	NAO	1-Day Acuvue Moist90 Pack
I Day Acuvue Moist 90 Pack	Thanks for the shipping upgrade to my order - it arrived in record time! No supply chain issues	5 out of 5	NA3	NA3	NA3	joan p.	12/2/	21 NA6	NA7	www.contactlensking.com	NAO	1-Day Acuvue Moist90 Pack
1 Day Acuvue Moist 90 Pack	The order came pretty quick!	5 out of 5	NA3	NA3	NA3	sondra f.	10/28/	21 NA6	NA7	www.contactlensking.com	NAO	1-Day Acuvue Moist90 Pack
I Day Acuvue Moist 90 Pack	They are great and a good price.	5 out of 5	NA3	NA3	NA3	jamie p.	10/11/	21 NA6	NA7	www.contactlensking.com	NA9	1-Day Acuvue Moist90 Pack
1 Day Acuvue Moist 90 Pack	They make me feel like I'm wearing nothing at all! (on my eyes)	5 out of 5	NA3	NA3	NA3	dan p.	12/4/	21 NA6	NA7	www.contactlensking.com	NA9	1-Day Acuvue Moist90 Pack
Day Acuvue Moist 90 Pack	They're okay mostly, but sometimes it feels like something is in your eye and you can't get it ou	5 out of 5	NA3	NA3	NA3	joeb.	12/8/	21 NA6	NA7	www.contactlensking.com	NA9	1-Day Acuvue Moist90 Pack
Day Acuvue Moist 90 Pack	Very comfortable	5 out of 5	NA3	NA3	NA3	sherry d.	10/12/	21 NA6	NA7	www.contactlensking.com	NA9	1-Day Acuvue Moist90 Pack
Day Acuvue Moist for Astigmatism 90 Pk.	As expected, they arrived as quick as they always do and prescription is perfect!	Soutof5	NA3	NA3	NA3	angelie o.	11/23/	21 NA6	NA7	www.contactlensking.com	NA9	1-Day Acuvue Moistfor Astigmatism 90 Pack
Day Acuvue Moist for Astigmatism 90 Pk.	Comfortable, convenient	Soutof5	NA3	NA3	NA3	jan r.	10/26/	21 NA6	NA7	www.contactlensking.com	NAG	1-Day Acuvue Moistfor Astigmatism 90 Pack
Day Acuvue Moist for Astigmatism 90 Pk.	Easy to use-very clear vision. Easy on dry eyes	Soutof5	NA3	NA3	NA3	robyn p.	10/3/	21 NA6	NA7	www.contactlensking.com	NAG	1-Day Acuvue Moistfor Astigmatism 90 Pack
Day Acurue Moist for Astigmatism 90 Pk.	QUICK	Soutof5	NA3	NA3	NA3	kathy m.	10/7/	21 NA6	NA7	www.contactlensking.com	N/A	1-Day Acurue Moistfor Astigmatism 90 Pack
1 Day Acurus Moist for Astigmatism 90 Pk.	Very comfortable to wear	SoutofS	NA3	NA3	NA3	Sanford D.	11/15/	11 NAG	NA7	www.contactlensking.com	NAG	1-Day Acuvue Moistfor Astigmatism 90 Pack

Figure 1: Raw data