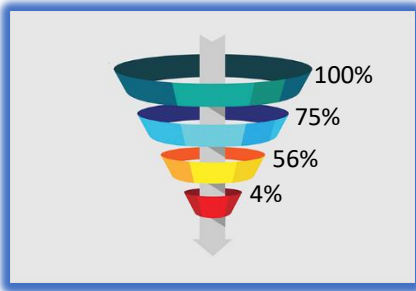# Insurance Analytics Result

74.88% got the quote after the app installation, 56.23% of total applicants/visitors were contacted by an agent, this is **75.10%** of the applicants/visitors who got the quote were contacted by as agent. Similarly, 24.90% were not interested to be contacted. Sales Conversion rate is **4.34%.**

The most installation, getting quote, being contacted and sale happens in summer time, specially in September. Although people in summer installed the application **almost 3 times** more than winter time, the sales rate in only **13%** more. (from 4.01% to 5.57%)
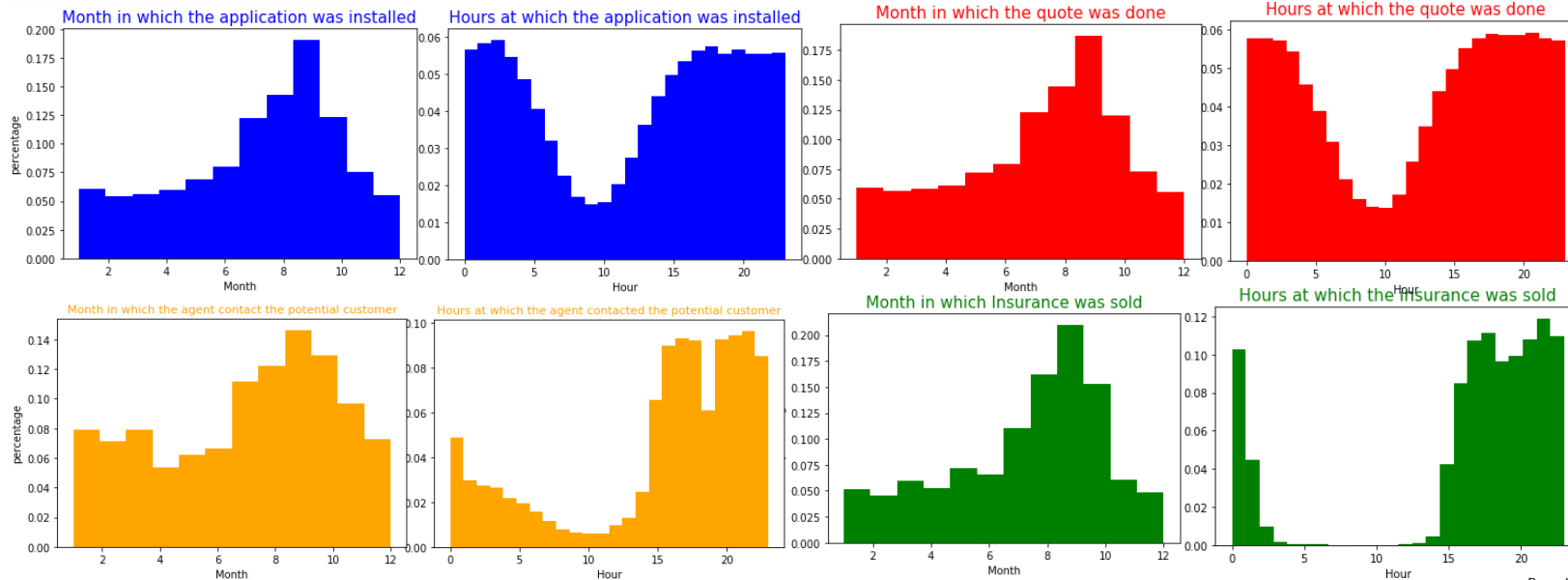

People use their free time to buy insurance. If they start in Tuesday or Wednesday, they finalize it before weekend.

At least **50%** of the applicants made the purchase with less than 3 days of their installation and getting quote. At least **50%** of them made it at the same day or the day after the contact by an agent. **75%** of them made it within 10 days of the contact.

Weekday	Install	Quote	Contact	Sold
Monday	20406	15184	12631	803
Tuesday	22672	16799	14210	929
Wednesday	25109	18530	14215	970
Thursday	23237	17306	13919	1099
Friday	19697	14876	12119	1362
Saturday	11121	8709	4349	463
Sunday	10048	7654	2951	115
Total	132290	99058	74394	5741

	d1 (diff sale & installation)	d2 (diff sale & quote)	d3 (diff sale & contact)
mean	17 days 21:13:25	16 days 05:00:13	14 days 13:02:23
std	38 days 18:49:53	36 days 12:09:49	35 days 16:06:56
min	0 days 00:10:00	0 days 00:08:00	0 days 00:00:00
25%	0 days 18:40:00	0 days 16:07:00	0 days 03:35:00
50%	3 days 16:42:30	3 days 01:38:00	1 days 23:46:00
75%	15 days 22:28:45	14 days 05:15:00	11 days 18:15:00
max	359 days 03:47:00	365 days 01:27:00	359 days 03:43:00

Box plot of Primum based on Type of insurance and Gender

Los Angeles has the highest premium while **Washington DC** has the lowest. Mean of Premium is the same for males and females. Age are Premium have very low correlation (**0.157**). Females have relatively higher rate of having accidents. The most customers are from New York city and the least from Dallas. Auto insurance has the highest mean. Auto and Home insurance have some outliers on upper side which belongs to luxury homes and cars. Females have wider range for premium. Life insurance have a few outliers on lower side. They can be those people who use some kind of subsidies or incentives from their work place. Rate of having ticket and insurance cancelation is close for both genders. The premium for Auto insurance for both genders are close. That can be due to type of cars females drive (cheaper car, not sportive) compare to males.

5 Models were fitted on the data, Linear Regression, Adaboost, Random Forest and SVR, KNN. Among these models, Random Forest with n=1000 is the best. The accuracy is about 75%.
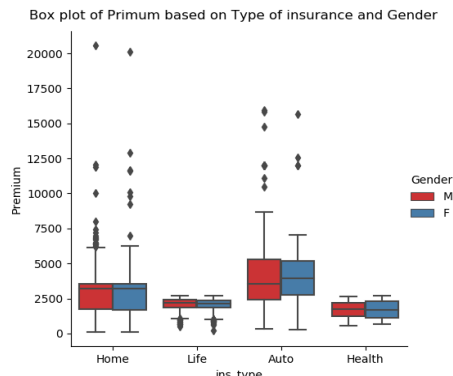
Linear Regression	34%
Adaboost	64%
Random Forest	75%
SVR	60%
KNN	15%

By Katayoon S. Mehr, May 2020