



The sales situation of Liquors in different regions

Team members :

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Description:

- Our projects works for analyzing the name, date, kind, price, quantity, and location of sale of sales of individual containers or packages of containers of alcoholic beverages from 2015 to get the sales situation and drinking behaviors of people in different regions.
- Which alcoholic beverage is the most popular in different regions.
- People in which region drink more alcoholic beverage.
- Which kind of alcoholic beverage gains the maximum profit.
- The tendency of sales volume of different alcoholic.
- How much alcoholic beverages sold and consumed.
- The distribution of prices.



Prior Work

- I. The description and went through our data set.
- II. Around 12 millions objects in our data sets.
- III. 24 different attributes .
- IV. What are the attributes types in our data sets.
- V. Talked with teammates to know what knowledge we can mine from our data set.

Datasets

- Our datasets is from The Iowa Department of Commerce, this is a government agency asked to have a class “E” Liquor license in the bottled form in order to off-the-premises use for individual store which sells alcohol. So each alcoholic sales need registered with Iowa system , then the open data is on the State of Iowa. We find our datasets on Kaggle , but the original published by the State of Iowa.
- Our datasets have around 12 millions objects and 24 different attributes.
- List of datasets to use
Iowa_Liquor_Sales.csv
- We found data from
<https://www.kaggle.com/residentmario/iowa-liquor-sales>
This datasets original published by the State of Iowa
<https://data.iowa.gov/Economy/Iowa-Liquor-Sales/m3tr-qhgy>
- All teammates in our group already downloaded that

4	S29050301	11/16/2015	3549	Quigley Mart 100 E WASHINGTON 50022	100 E WASH	50022	1414 48TH	56	Lee			130	Disaronno	249	Disaronno	20	150	\$6.40	\$9.60	2	\$19.20	0.30	0.08
5	S28867701	11/04/2015	2513	Hy-Vee Fo 812 S 1ST IOWA CITY 52240	812 S 1ST	52		52	Johnson			65	Jim Beam	237	Knob Cree	3	1750	\$35.55	\$53.34	3	\$160.02	5.25	1.39
6	S29050801	11/17/2015	3942	Twin Town 104 HIGH TOLEDO 52342	104 HIGH	86		86	Tama			130	Disaronno	249	Disaronno	20	150	\$6.40	\$9.60	2	\$19.20	0.30	0.08
7	S28869201	11/11/2015	3650	Spirits, Str 118 South HOLSTEIN 51025	118 South	47		47	Ida			65	Jim Beam	237	Knob Cree	3	1750	\$35.55	\$53.34	1	\$53.34	1.75	0.46
8	S28865701	11/09/2015	2538	Hy-Vee Fo 1422 FLAM WATERLC 50702	1422 FLAM	07		07	Black Haw	1701100	DECANTE	962	Duggan's	238	Forbidden	6	1500	\$11.62	\$17.43	6	\$104.58	9.00	2.38
9	S28869501	11/10/2015	3942	Twin Town 104 HIGH TOLEDO 52342	104 HIGH	86		86	Tama			65	Jim Beam	237	Knob Cree	3	1750	\$35.55	\$53.34	2	\$106.68	3.50	0.92
10	S29339301	11/30/2015	2662	Hy-Vee Wi 522 MULB MUSCATIN 52761	522 MULB	70		70	Muscataine	1701100	DECANTE	65	Jim Beam	173	Laphroaig	12	750	\$19.58	\$29.37	4	\$117.48	3.00	0.79
11	S29050901	11/16/2015	4307	Crossroad: 117 IOWA DUNLAP 712-2	117 IOWA	43		43	Harrison			130	Disaronno	249	Disaronno	20	150	\$6.40	\$9.60	2	\$19.20	0.30	0.08
12	S29049901	11/17/2015	2661	Hy-Vee Fo 1989 PARI SHELTON 51201	1989 PARI	71		71	O'Brien			130	Disaronno	249	Disaronno	20	150	\$6.40	\$9.60	20	\$192.00	3.00	0.79
13	S28868201	11/05/2015	2561	Hy-Vee Fo 4605 FLEDES MOIN 50321	4605 FLEDE	77		77	Polk			65	Jim Beam	237	Knob Cree	3	1750	\$35.55	\$53.34	2	\$106.68	3.50	0.92
14	S28869601	11/09/2015	4114	After 5 Sor 704 W 7TH ATLANTIC 50022	704 W 7TH	15		15	Cass			65	Jim Beam	237	Knob Cree	3	1750	\$35.55	\$53.34	3	\$160.02	5.25	1.39
15	S28866901	11/11/2015	3650	Spirits, Str 118 South HOLSTEIN 51025	118 South	47		47	Ida	1701100	DECANTE	962	Duggan's	238	Forbidden	6	1500	\$11.62	\$17.43	1	\$17.43	1.50	0.40
16	S29050101	11/19/2015	2806	Osco #8811307 N SE CLINTON 52732	1307 N SE	23		23	Clinton			130	Disaronno	249	Disaronno	20	150	\$6.40	\$9.60	20	\$192.00	3.00	0.79
17	S29049601	11/17/2015	2624	Hy-Vee #2 2395 NW / DUBUQUE 52002	2395 NW	31		31	Dubuque			130	Disaronno	249	Disaronno	20	150	\$6.40	\$9.60	20	\$192.00	3.00	0.79
18	S28868401	11/04/2015	2572	Hy-Vee Fo 6301 UNIV CEDAR FA 50613	6301 UNIV	07		07	Black Haw			65	Jim Beam	237	Knob Cree	3	1750	\$35.55	\$53.34	3	\$160.02	5.25	1.39
19	S29196301	11/24/2015	2595	Hy-Vee Wi 1620 4TH DENISON 51442	1620 4TH	24		24	Crawford			255	Wilson Da	297	Templeton	6	750	\$18.09	\$27.14	6	\$162.84	4.50	1.19
20	S29134301	11/18/2015	3723	J D Spirits 1023 9TH ONAWA 51040	1023 9TH	67		67	Monona	1081200	CREAM LI	305	MHW Ltd	258	Rumchata	1	6000	\$99.00	\$148.50	1	\$148.50	6.00	1.59
21	S28869001	11/10/2015	2665	Hy-Vee / V 1005 E HK WAUKEE 50263	1005 E HK	25		25	Dallas			65	Jim Beam	237	Knob Cree	3	1750	\$35.55	\$53.34	2	\$106.68	3.50	0.92
22	S29198701	11/24/2015	5093	Cody Mart 1220 N CCLE CLAIRE 52753	1220 N CC	82		82	Scott			255	Wilson Da	297	Templeton	6	750	\$18.09	\$27.14	3	\$81.42	2.25	0.59
23	S29282801	11/23/2015	2642	Hy-Vee Wi 512 E OSHEL PELLA 50219	512 E OSHEL	63		63	Marion	1701100	DECANTE	962	Duggan's	238	Forbidden	6	1500	\$11.62	\$17.43	6	\$104.58	9.00	2.38
24	S28868001	11/04/2015	2548	Hy-Vee Fo 100 8TH S ALTOONA 50009	100 8TH S	77		77	Polk			65	Jim Beam	237	Knob Cree	3	1750	\$35.55	\$53.34	3	\$160.02	5.25	1.39
25	S29199601	11/20/2015	2558	Hy-Vee Fo 1700 E W MOUNT PI 52641	1700 E W	44		44	Henry			255	Wilson Da	297	Templeton	6	750	\$18.09	\$27.14	18	\$488.52	13.50	3.57
26	S29050501	11/18/2015	3735	C B Liquor 1202 A AVIOSKALOC 52577	1202 A AV	10		10	Buchanan			130	Disaronno	249	Disaronno	20	150	\$6.40	\$9.60	3	\$28.80	0.45	0.12
27	S28867001	11/04/2015	3842	Bancroft Li 107 N POB BANCROF 50517	107 N POB	55		55	Kossuth	1701100	DECANTE	962	Duggan's	238	Forbidden	6	1500	\$11.62	\$17.43	3	\$52.29	4.50	1.19
28	S28868601	11/09/2015	2650	Hy-Vee Wi 1808 23RD HARLAN 51537	1808 23RD	83		83	Shelby			65	Jim Beam	237	Knob Cree	3	1750	\$35.55	\$53.34	3	\$160.02	5.25	1.39
29	S28869101	11/10/2015	2666	Hy-Vee #2 2510 SW / ANKENY 50023	2510 SW	77		77	Polk			65	Jim Beam	237	Knob Cree	3	1750	\$35.55	\$53.34	3	\$160.02	5.25	1.39
30	S29197901	11/23/2015	3842	Bancroft Li 107 N POB BANCROF 50517	107 N POB	55		55	Kossuth			255	Wilson Da	297	Templeton	6	750	\$18.09	\$27.14	18	\$488.52	13.50	3.57
31	S28865801	11/09/2015	2539	Hy-Vee Fo HIGHWAY IOWA FAL 50126	HIGHWAY	42		42	Hardin	1701100	DECANTE	962	Duggan's	238	Forbidden	6	1500	\$11.62	\$17.43	6	\$104.58	9.00	2.38
32	S28868701	11/10/2015	2651	Hy-Vee / V 1311 4 ST W AVERLY 50677	1311 4 ST	09		09	Bremer			65	Jim Beam	237	Knob Cree	3	1750	\$35.55	\$53.34	2	\$106.68	3.50	0.92
33	S29050001	11/17/2015	2666	Hy-Vee #2 2510 SW / ANKENY 50023	2510 SW	77		77	Polk			130	Disaronno	249	Disaronno	20	150	\$6.40	\$9.60	20	\$192.00	3.00	0.79
34	S29198101	11/23/2015	4162	Fareway S 4220 16TH CEDAR R/ 52404	4220 16TH	57		57	Linn			255	Wilson Da	297	Templeton	6	750	\$18.09	\$27.14	6	\$162.84	4.50	1.19
35	S29195801	11/21/2015	2552	Hy-Vee Fo 20 WILSO CEDAR R/ 52404	20 WILSO	57		57	Linn			255	Wilson Da	297	Templeton	6	750	\$18.09	\$27.14	90	\$2442.60	67.50	17.83
36	S29197801	11/23/2015	3650	Spirits, Str 118 South HOLSTEIN 51025	118 South	47		47	Ida			255	Wilson Da	297	Templeton	6	750	\$18.09	\$27.14	18	\$488.52	13.50	3.57
37	S29049101	11/16/2015	2538	Hy-Vee Fo 1422 FLAM WATERLC 50702	1422 FLAM	07		07	Black Haw			130	Disaronno	249	Disaronno	20	150	\$6.40	\$9.60	40	\$384.00	6.00	1.59
38	S29049501	11/18/2015	2594	Hy-Vee Fo 4500 SER SIOUX CIT 51106	4500 SER	97		97	Woodbury			130	Disaronno	249	Disaronno	20	150	\$6.40	\$9.60	20	\$192.00	3.00	0.79
39	S29051001	11/19/2015	4988	Happy's W 5925 UNIV CEDAR FA 50613	5925 UNIV	07		07	Black Haw			130	Disaronno	249	Disaronno	20	150	\$6.40	\$9.60	20	\$192.00	3.00	0.79
40	S28867101	11/09/2015	4604	Pit Stop Li 1324, 1st / NEWTON 50208	1324, 1st	50		50	Jasper	1701100	DECANTE	962	Duggan's	238	Forbidden	6	1500	\$11.62	\$17.43	2	\$34.86	3.00	0.79
41	S29049801	11/16/2015	2643	Hy-Vee Wi 2126 KIME WATERLC 50701	2126 KIME	07		07	Black Haw			130	Disaronno	249	Disaronno	20	150	\$6.40	\$9.60	20	\$192.00	3.00	0.79
42	S29049201	11/17/2015	2544	Hy-Vee Fo 802 SOUT MARSHAL 50158	802 SOUT	64		64	Marshall			130	Disaronno	249	Disaronno	20	150	\$6.40	\$9.60	20	\$192.00	3.00	0.79
43	S29196501	11/21/2015	2607	Hy-Vee Wi 520 SO FF SHENAND 51601	520 SO FF	73		73	Page			255	Wilson Da	297	Templeton	6	750	\$18.09	\$27.14	30	\$814.20	22.50	5.94
44	S29191201	11/19/2015	2248	Ingersoll Li 3500 INGEDES MOIN 50312	3500 INGE	77		77	Polk	1701100	DECANTE	65	Jim Beam	173	Laphroaig	12	750	\$19.58	\$29.37	36	\$1057.32	27.00	7.13
45	S29050601	11/17/2015	3813	CGI Foods 104 NORT MOUNT A/ 50854	104 NORT	80		80	Ringgold			130	Disaronno	249	Disaronno	20	150	\$6.40	\$9.60	6	\$57.60	0.90	0.24
46	S29199301	11/20/2015	2539	Hy-Vee Fo HIGHWAY IOWA FAL 50126	HIGHWAY	42		42	Hardin			255	Wilson Da	297	Templeton	6	750	\$18.09	\$27.14	12	\$325.68	9.00	2.38
47	S29197301	11/21/2015	3443	Super Saw 1141 N BR COUNCIL 51503	1141 N BR	78		78	Pottawatta			255	Wilson Da	297	Templeton	6	750	\$18.09	\$27.14	6	\$162.84	4.50	1.19
48	S28868901	11/10/2015	2661	Hy-Vee Fo 1989 PARI SHELTON 51201	1989 PARI	71		71	O'Brien			65	Jim Beam	237	Knob Cree	3	1750	\$35.55	\$53.34	3	\$160.02	5.25	1.39
49	S29197501	11/20/2015	3525	Wines and 106 W 2ND WASHING 52353	106 W 2ND	92		92	Washingto			255	Wilson Da	297	Templeton	6	750	\$18.09	\$27.14	6	\$162.84	4.50	1.19
50	S29049301	11/19/2015	2567	Hy-Vee Dri 2200 WES DAVENPC 52806	2200 WES	82		82	Scott			130	Disaronno	249	Disaronno	20	150	\$6.40	\$9.60	6	\$57.60	0.90	0.24
51	S29196201	11/20/2015	2591	Hy-Vee Wi 1602 E 7TH ATLANTIC 50022	1602 E 7TH	15		15	Cass			255	Wilson Da	297	Templeton	6	750	\$18.09	\$27.14	24	\$651.36	18.00	4.76
52	S29137201	11/18/2015	2566	Hy-Vee Fo 813 N LINK KNOXVILL 50138	813 N LINK	63		63	Marion	1701100	DECANTE	962	Duggan's	238	Forbidden	6	1500	\$11.62	\$17.43	12	\$209.16	18.00	4.76

Proposed work:

- Data cleaning and Data preprocessing
 - :Fill in the missing value manually
 - Fill in it automatically with
 - global constant
 - attribute mean
 - attribute mean of same class
 - inference-based
- Graphic
 - (1)Histogram for different liquors.
- Analyzing the data
 - (1)For example we have to calculate the support for different liquors.
 - (2)We have to calculate the confidence for different liquor and different cities in Iowa.
- Get results:
 - (1)From the result, we can find out for different cities what are the popular liquors.
 - (2)What liquor is most popular.

A background image showing a dense collection of laboratory vials with various colored caps (red, blue, orange) and some containing liquids. The image is slightly blurred and has a dark overlay.

List of tools

- Microsoft Excel
- Pandas
- Python
- Numpy
- Matplotlib
- Delimit
- Jupyter Notebook
- Overleaf

Evaluation:

- We can use refined calculation to evaluate our result like distribution and profit.
- . We can use google to verify our results.