National Health & Examination Survey

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NHANES datasets from 2013-2014

Imported from Kaggle

Created by the Centers for Disease Control & Prevention

Data Visualization from Google Colab Python Notebook

https://colab.research.google.com/drive/1mReeeQf8mq8gLbLO5mENgOs6QPLmwe-4

Dataset

https://drive.google.com/open?id=1HUwEHCBtMRCgkoANo4u99sUrQ8sR2bjR

Used 5 csv files from the survey

Total size: 29.81

Demographics.csv(1.15MB
Diet.csv(4.37MB)
Examination.csv(4.51MB)
Labs.csv(7.94MB)
Questionnaire.csv(11.84MB)

Demographics | Diet

SEQN	WTDRD1	WTDR2D	DR1DRSTZ	DR1EXMER	DRABF	DRDINT	DR1DBIH	DR1DAY	DR1LANG	DR1MNRSF	DR1HELPD	DBQ095Z	DBD100	DRQSPREP
73557	16888.33	12930.89	1	49	2	2	6	2	1	1	13	3	2	4
73558	17932.14	12684.15	1	59	2	2	4	1	1	1	13	1	2	3
73559	59641.81	39394.24	1	49	2	2	18	6	1	1	13	1	1	2
73560	142203.1	125966.4	1	54	2	2	21	3	1	1	12	1	1	3
73561	59052.36	39004.89	1	63	2	2	18	1	1	1	13	4		4
73562	49890.83	0	1	49	2	1	11	3	1	1	13	1	3	3
73563	31417.22	40735.78	4	54	1	2	2	3	1	2	13	4		1
73564	78988.76	52173.16	1	54	2	2	12	7	1	1	13	4		1
73566	30697.88	0	1	49	2	1	3	2	1	1	13	4		3

SEQN	SDDSRVYR	RIDSTATR	RIAGENDR	RIDAGEYR	RIDAGEMN	RIDRETH1	RIDRETH3	RIDEXMON	RIDEXAGM	DMQMILIZ	DMQADFC	DMDBORN	DMDCITZN	DMDYRSUS
73557	8	2	1	69		4	4	1		1	1	1	1	
73558	8	2	1	54		3	3	1		2		1	1	
73559	8	2	1	72		3	3	2		1	1	1	1	
73560	8	2	1	9		3	3	1	119			1	1	
73561	8	2	2	73		3	3	1		2		1	1	
73562	8	2	1	56		1	1	1		1	2	1	1	
73563	8	2	1	0	5	3	3	2	6			1	1	
73564	8	2	2	61		3	3	2		2		1	1	
73565	8	1	1	42		2	2			2		1	1	

Exam | Labs

SEQN	URXUMA	URXUMS	URXUCR.x	URXCRS	URDACT	WTSAF2YR	LBXAPB	LBDAPBSI	LBXSAL	LBDSALSI	LBXSAPSI	LBXSASSI	LBXSATSI	LBXSBU
73557	4.3	4.3	39	3447.6	11.03				4.1	41	129	16	16	10
73558	153	153	50	4420	306				4.7	47	97	18	29	16
73559	11.9	11.9	113	9989.2	10.53	142196.9	57	0.57	3.7	37	99	22	16	14
73560	16	16	76	6718.4	21.05									
73561	255	255	147	12994.8	173.47	142266	92	0.92	4.3	43	78	36	28	31
73562	123	123	74	6541.6	166.22				4.3	43	95	24	16	18
73563														
73564	19	19	242	21392.8	7.85	134054.1	77	0.77	3.9	39	72	20	21	17
73566	1.3	1.3	18	1591.2	7.22				4.1	41	93	23	24	9

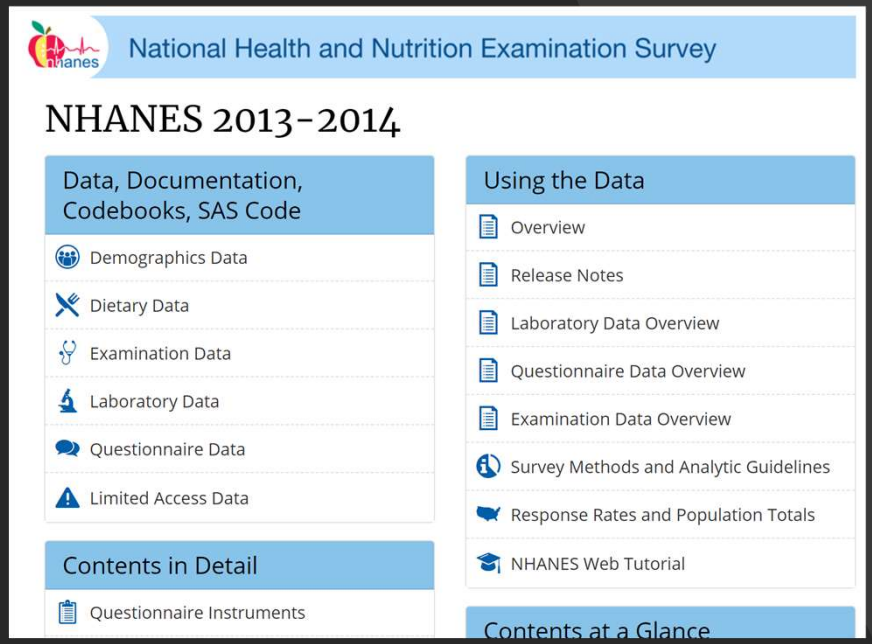
SEQN	PEASCST1	PEASCTM1	PEASCCT1	BPXCHR	BPAARM	BPACSZ	BPXPLS	BPXPULS	BPXPTY	BPXML1	BPXSY1	BPXDI1	BPAEN1	BPXSY2
73557	1	620			1	4	86	1	1	140	122	72	2	114
73558	1	766			1	4	74	1	1	170	156	62	2	160
73559	1	665			1	4	68	1	1	160	140	90	2	140
73560	1	803			1	2	64	1	1	130	108	38	2	102
73561	1	949			1	3	92	1	1	170	136	86	2	134
73562	1	1064			1	5	60	1	1	180	160	84	2	158
73563	1	90		152				1						
73564	1	954			1	5	82	1	1	150	118	80	2	124
73566	1	625			1	4	86	1	1	140	128	74	2	124

Questionnaire

SEQN	ACD011A	ACD011B	ACD011C	ACD040	ACD110	ALQ101	ALQ110	ALQ120Q	ALQ120U	ALQ130	ALQ141Q	ALQ141U	ALQ151	ALQ160
73557	1					1		1	3	1	0		1	
73558	1					1		7	1	4	2	1	1	0
73559	1					1		0					2	
73560	1													
73561	1					1		0					2	
73562				4		1		5	3	1	0		2	0
73563														
73564	1					2	1	2	3	1	0		2	
73565				5										

Understanding the Data

- Survey took place in 2013 – 2014
- Most of the dataset is written in code
- Provides a dictionary of information to understand the csv files
- Every year, about 5,000 individuals of all ages are interviewed in America to conduct a health evaluation interview
- Sample size: 10,175 individuals



Survey Objective

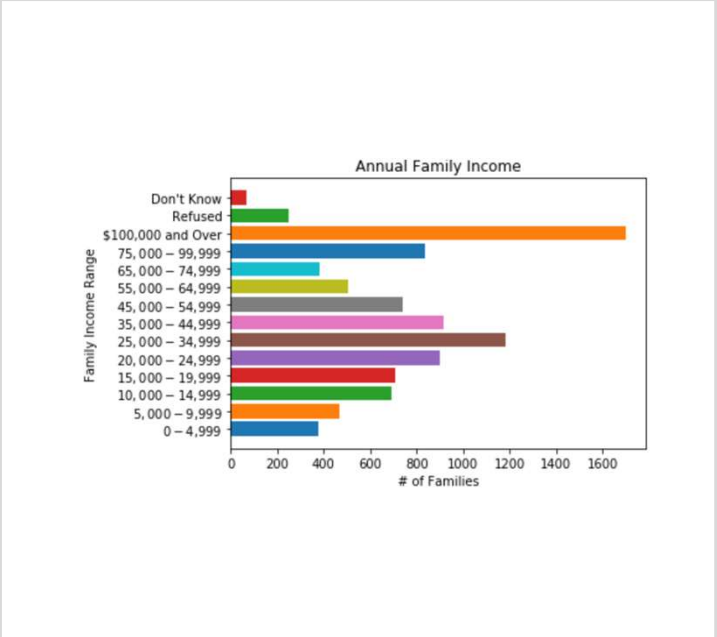
MONITOR TRENDS IN DISEASES, RISK FACTORS, DISEASES, TREATMENTS

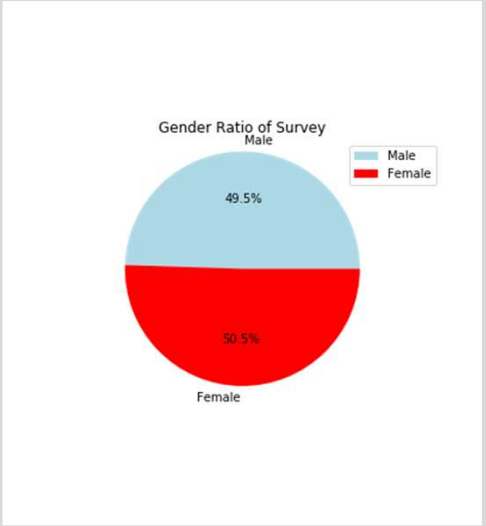
STUDY THE RELATIONSHIP IN NUTRITION, DIET AND HEALTH

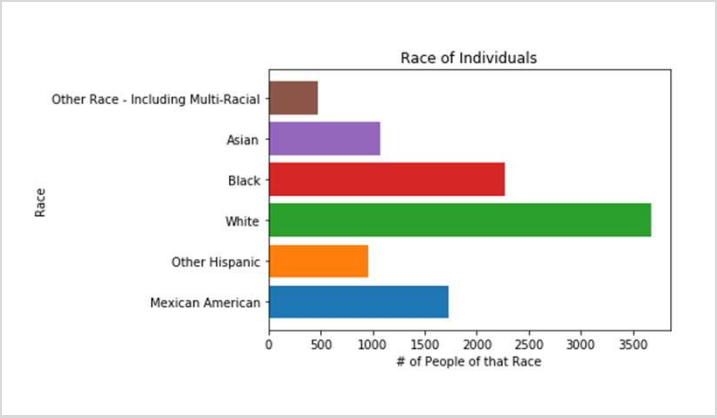
DISCOVER NEW TECHNOLOGIES THAT WILL IMPROVE THE OVERALL HEALTH OF AMERICA

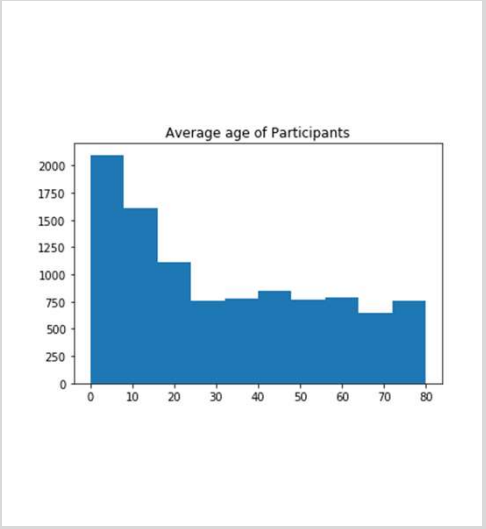
Demographics

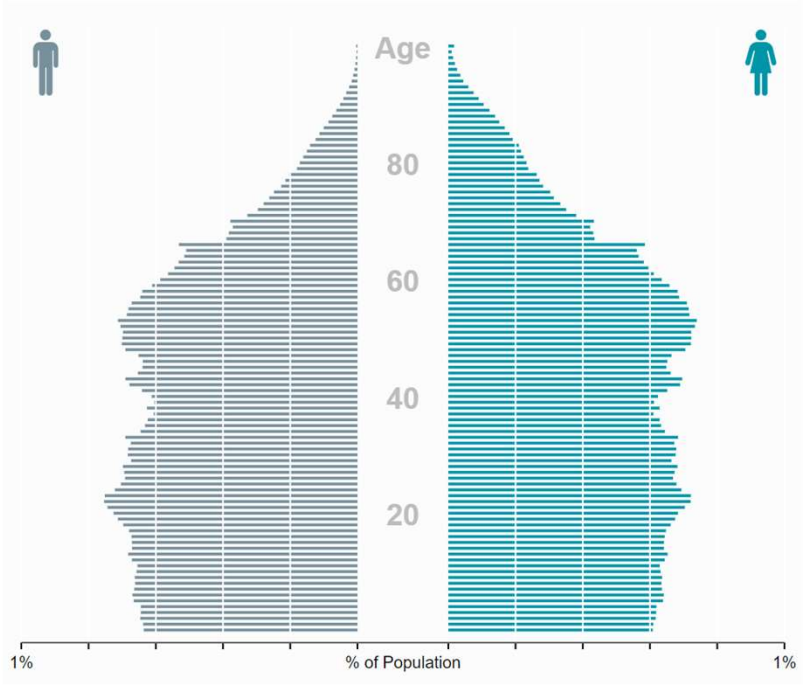
- In terms of gender, there seems to be an even number of males and females
- A majority of the participants were children. Average age was 31.48
- Mostly white individuals
- Family Income seems evenly split

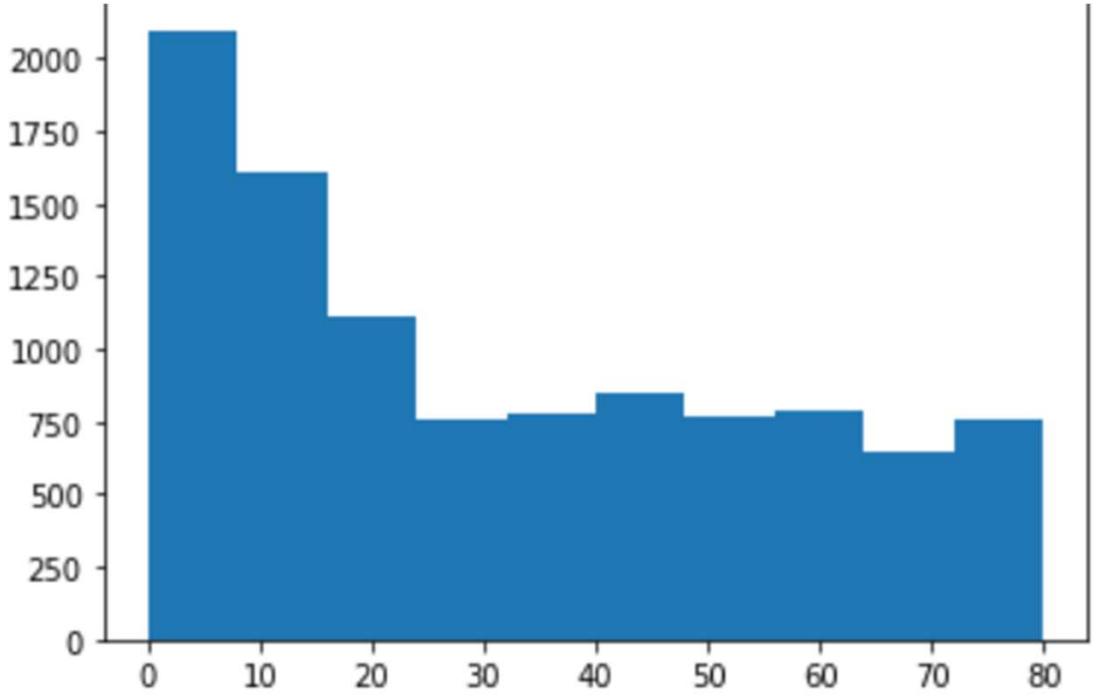










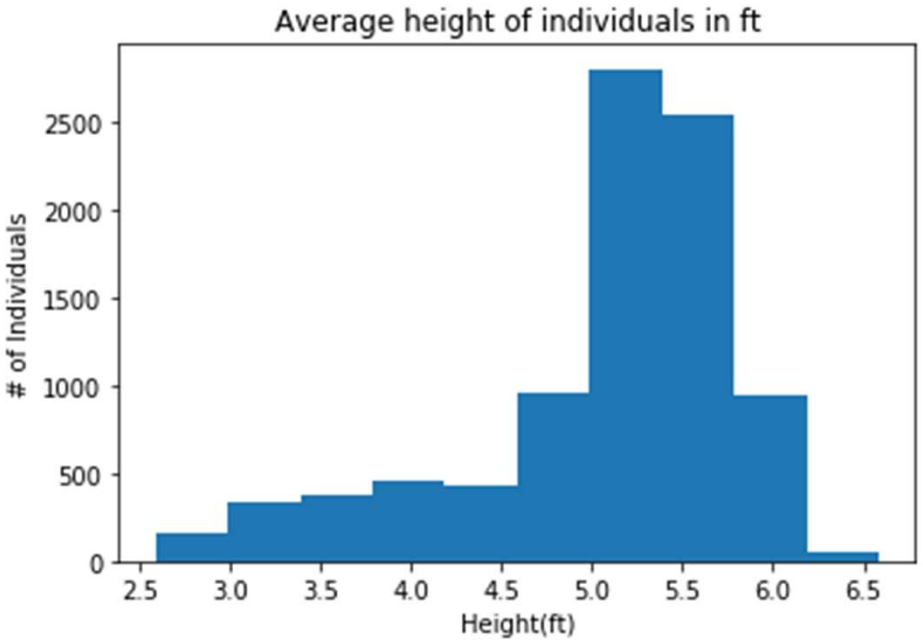


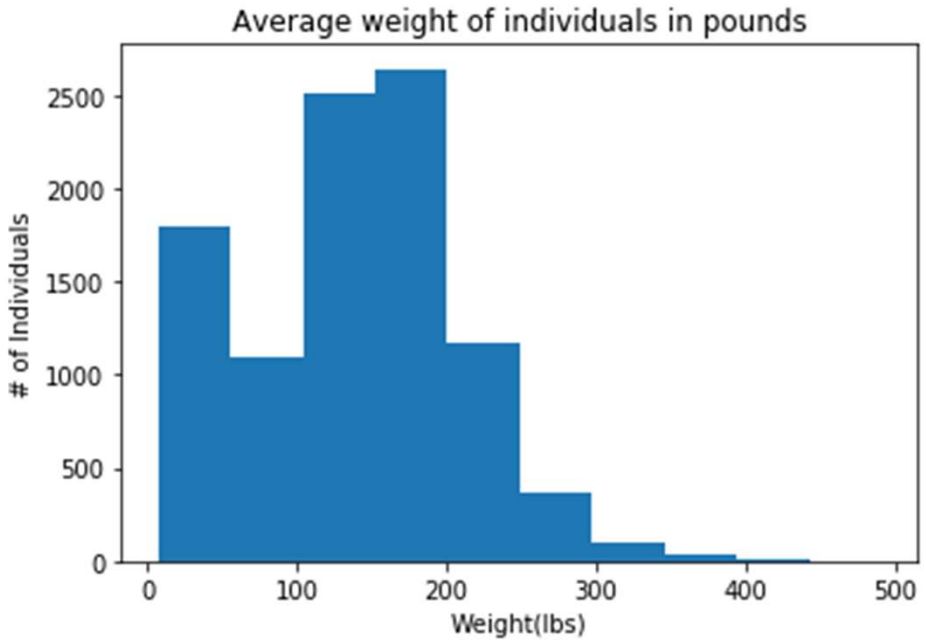
Oversampling

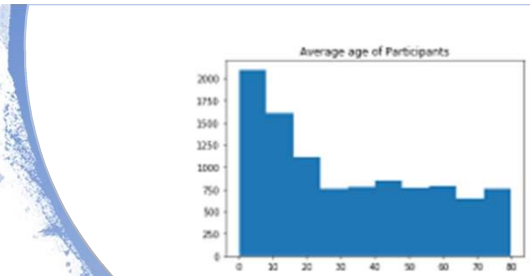
Survey decided to oversample children years 10 and under and seniors over 60 because they are more vulnerable to diseases

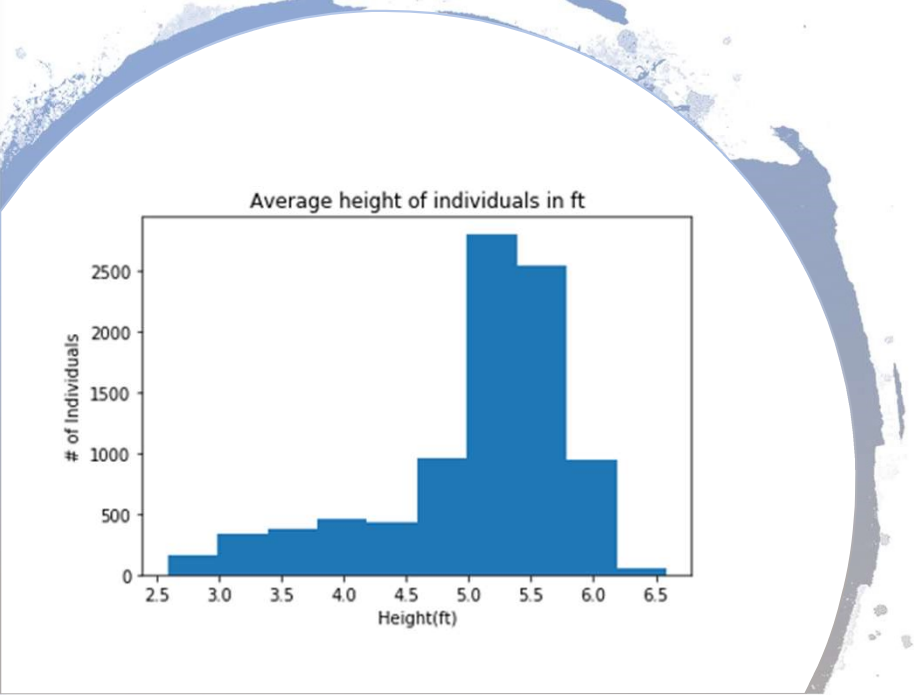
(Picture to the left from census.gov)

Height and Weight



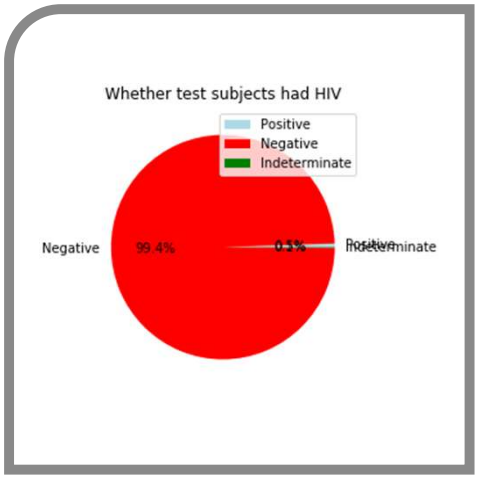


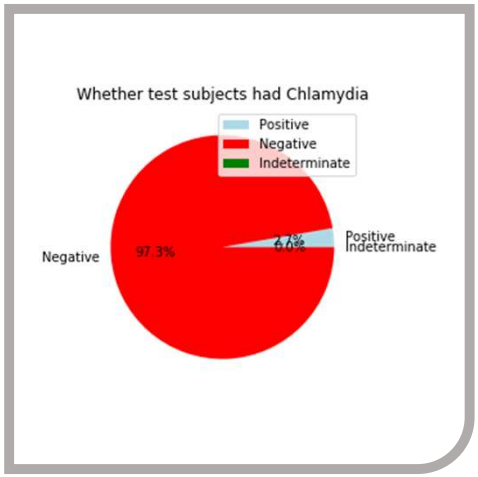




Height and Age

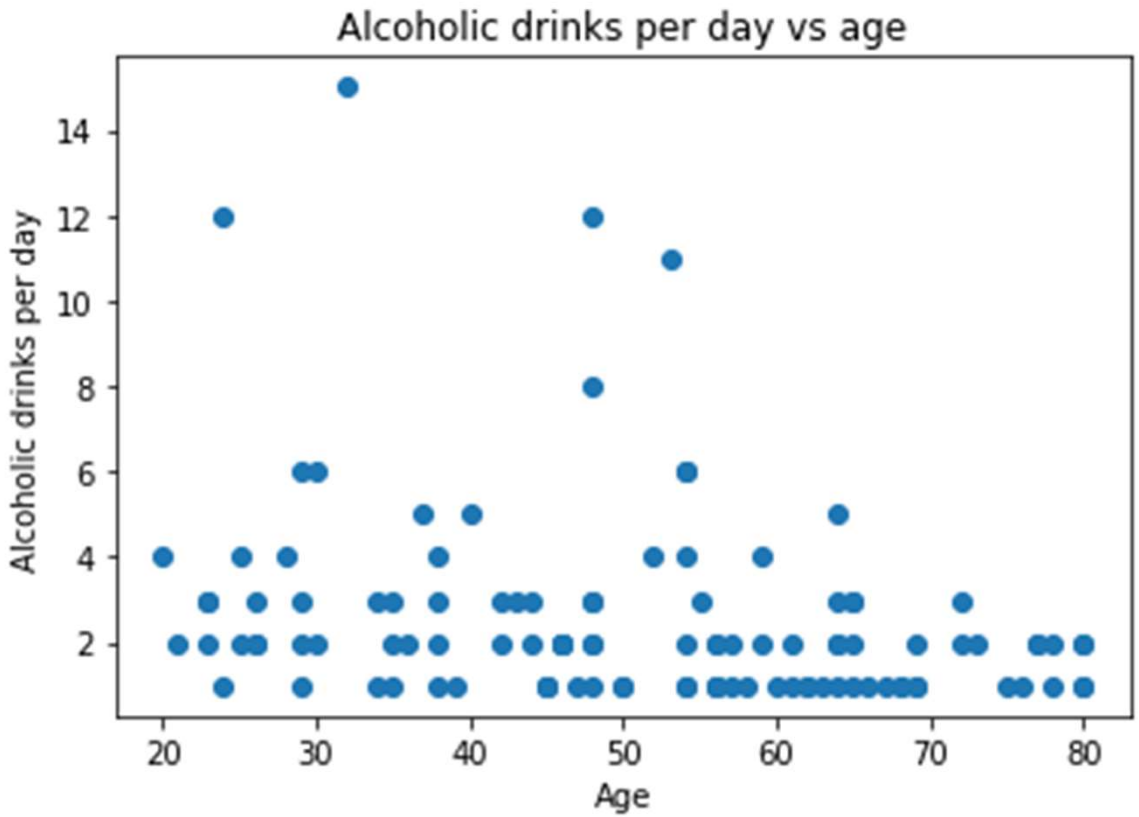
- Does not look consistent
- Height was only measured for people from 2 years and up
  - Most children of the survey were ignored in this portion.





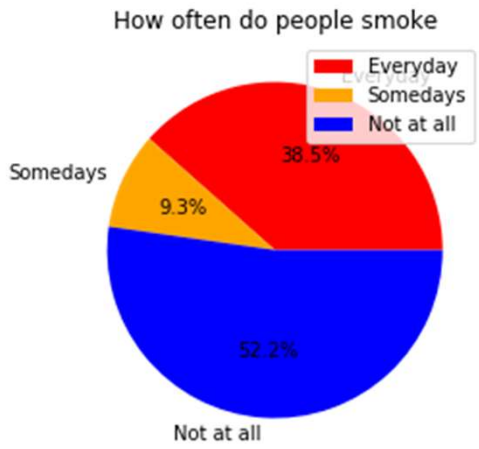
STDs

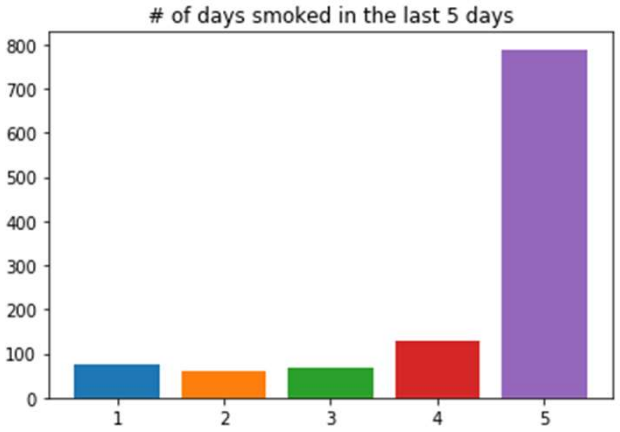
- Most of the participants of the survey are clean from STDs
- Chlamydia is more common than HIV



Alcohol Use

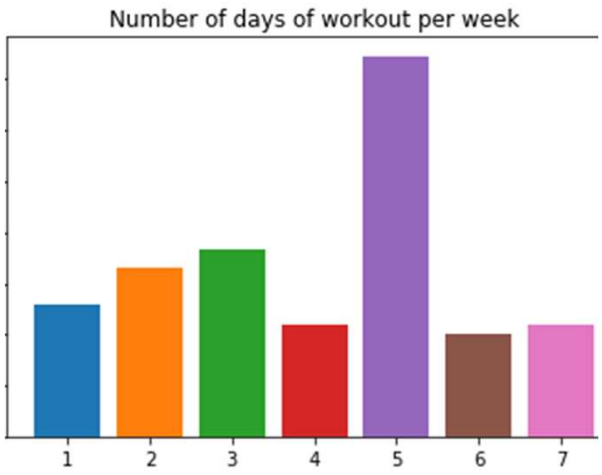
- There is a generally constant number of alcoholic drinks that people have daily.
- Age 30 is when people drink the most, and it slowly declines

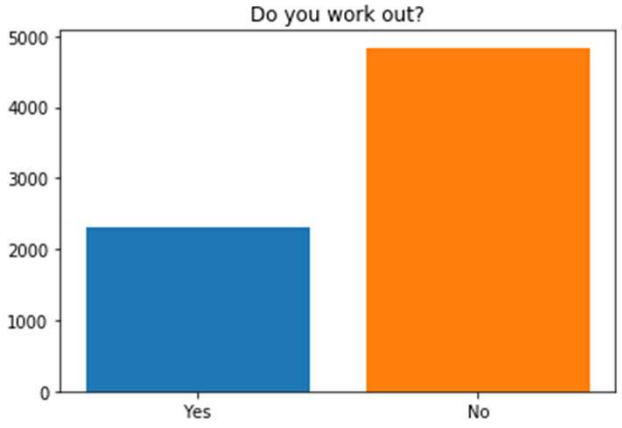




Cigarettes

- Smoking seems to be very addictive
- Less than half of the participants smoke, however, the smokers end up smoking everyday.
- Most people who end up smoking fail to give up smoking.
  - Smoking is a major issue that most fail to quit



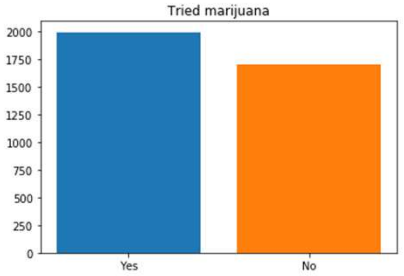


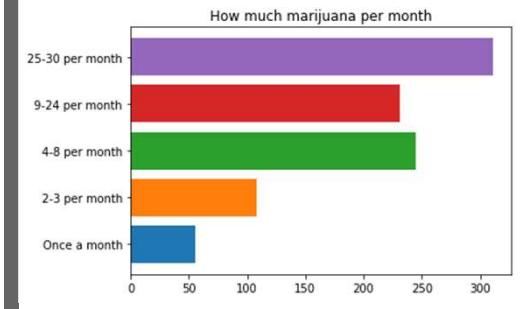
Moderate Workout

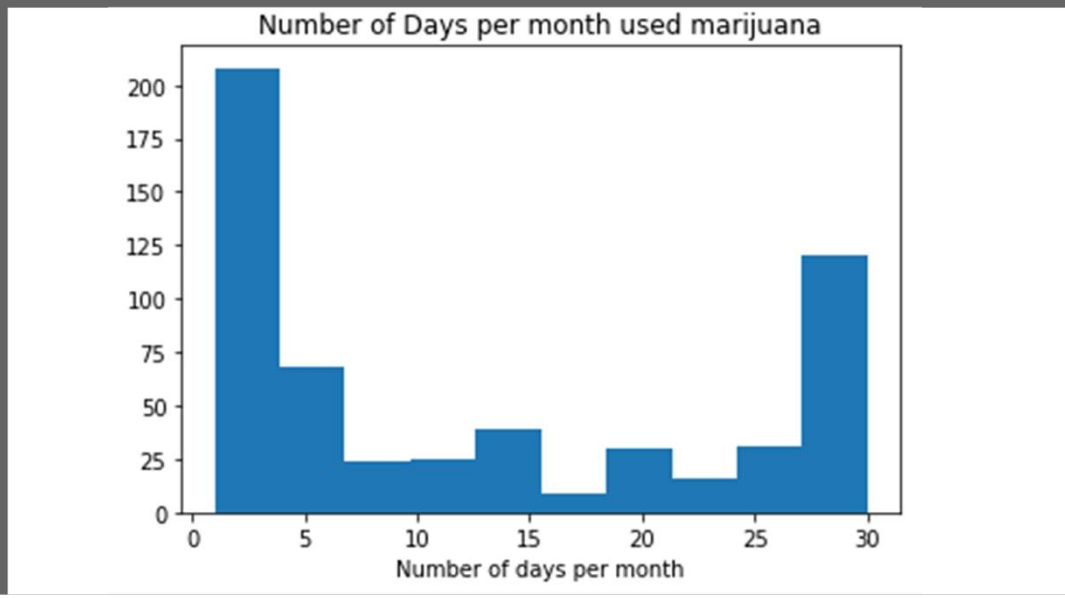
- Shows that only about 1/3 of people actually work out
  - Needs a way to encourage people to exercise more
    - An app that rewards people for daily workouts
- However, the ones that exercise, exercise about 5 days a week

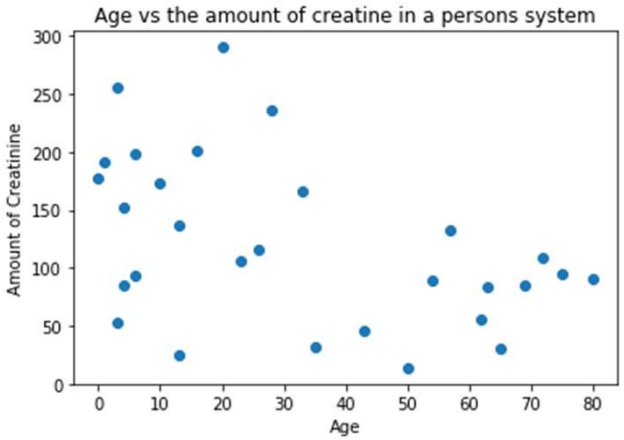
Marijuana Use

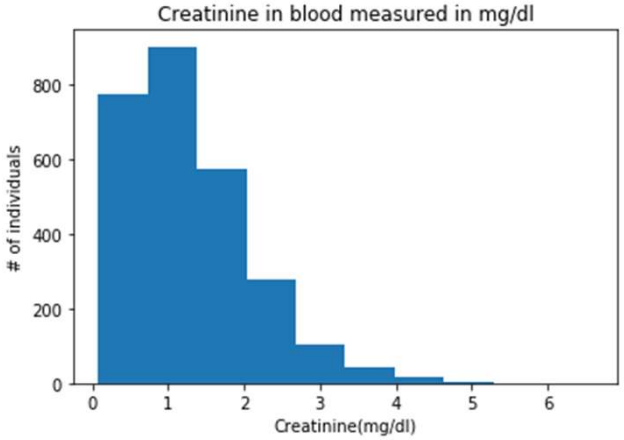
- About half of the participants have tried Marijuana
- People either only smoke about a few times a month or nearly everyday.
  - Rarely any are smoking half the number of days
- When comparing the graphs, it seems that a lot of the people who smoke marijuana a few times a month, smoke a lot per month.









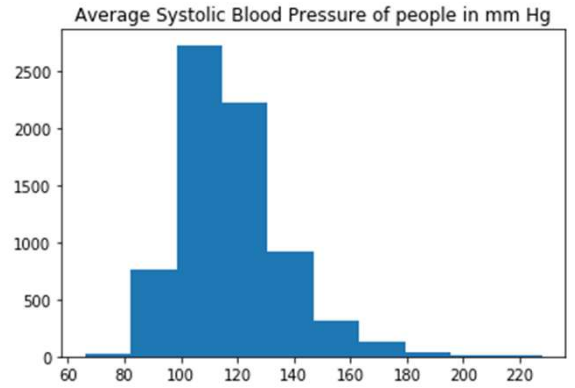


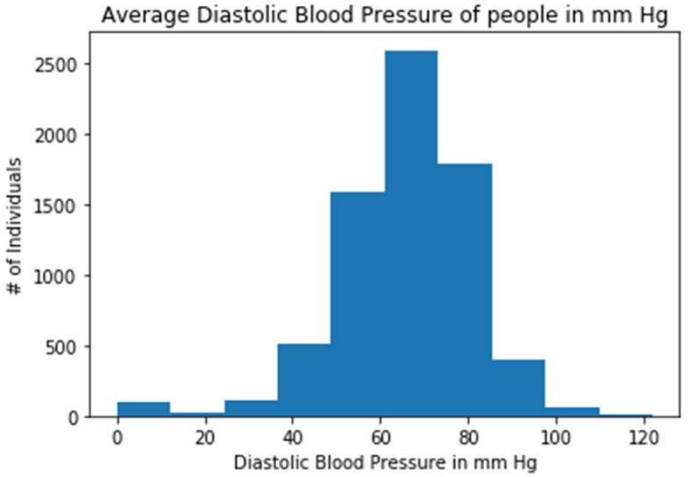
Creatinine

- Tested through urine
- Normal = .6-1.2 mg/dL(medicinenet.com)
- Causes of high creatinine levels
  - Kidney Failure
  - Poor Exercise
  - Poor Diet

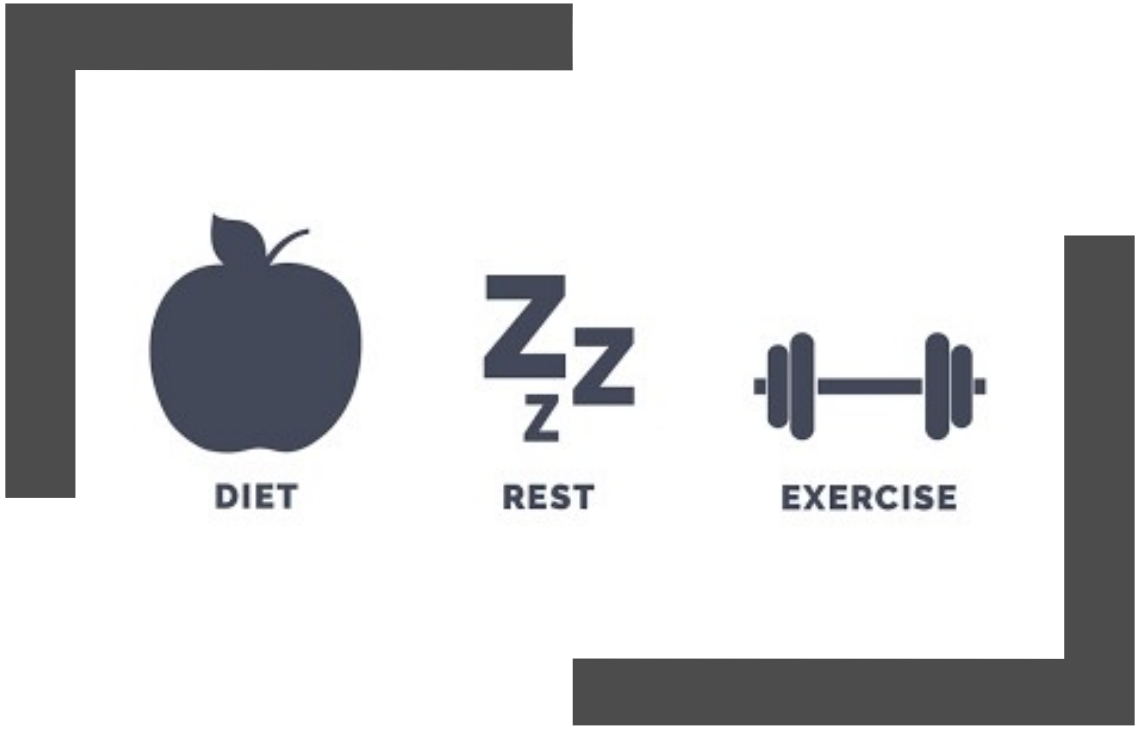
Blood Pressure

- Causes of High Blood Pressure
  - Diabetes
  - Kidney Diseases
  - Smoking/Drinking
  - Diet consists of high salt, sugar and fat
  - Lack of Exercise
    - To prevent it, exercise and eat healthier
- Normal Blood Pressure
  - >120 Systolic
  - >80 Diastolic





Results from Creatinine and Blood Pressure



- Most issues with individual health come from:
  - A lack of exercise
  - Smoking & Drinking
  - Poor Diets

Solution

- We need to spread the urgency to Exercise and Eat Healthy
  - Spreading ad campaigns on TV
  - On Smart Watches, alter the health application to increase notifications when one is not exercising enough
  - Restaurants need to emphasize healthier and cheaper options
  - Lower alcohol and cigarette intakes