

CAPSTONE PROJECT:- FITBIT CONSUMER BEHAVIOUR ANALYSIS

I delve into the world of Fitbit app usage to uncover the valuable insights. I explore how consumers engage with the Fitbit app, providing essential Knowledge for marketing team to refine strategies and enhance user experience.



Report & Analysis by
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ACKOWLEDGEMENT

Under the guidance of respected '**Rushikesh konapure**' sir with the support of '**PreInsta Team**'. I analysed the Fitbit Fitness App data to extract valuable insights from the Fitbit users. Using Python, NumPy, Matplotlib and its libraries, I perform the Data Cleaning, Transformation, Manipulation and Visualization. I extracted insights, documented sources and provided key findings.

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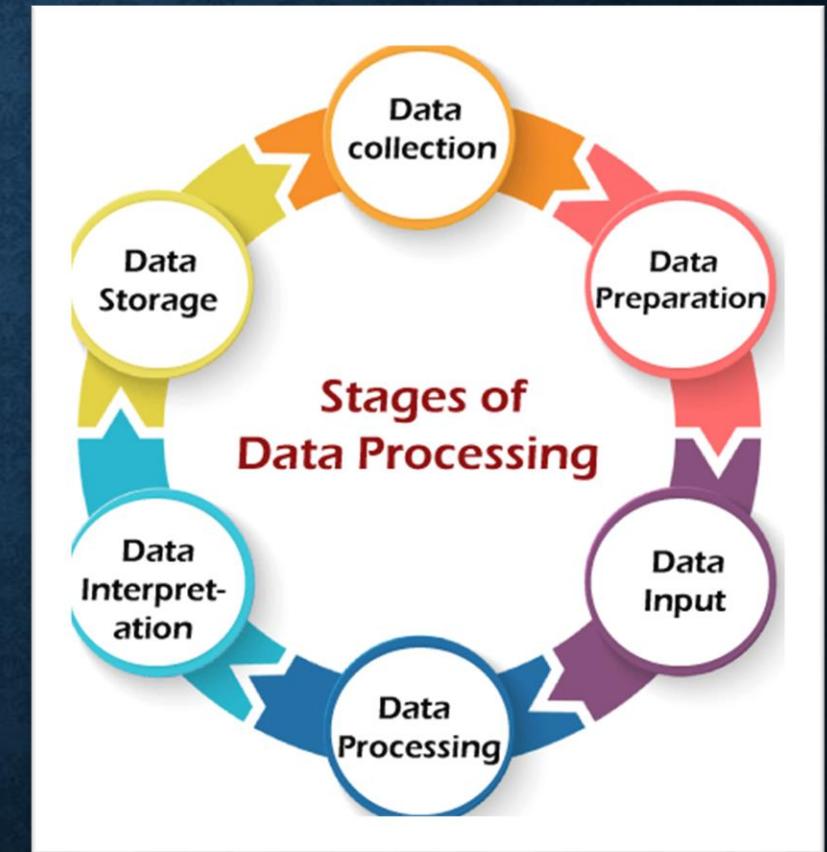
INTRODUCTION

Objective :- Imagine you are a data analyst at “Health Trackers Inc.,” a fictional company operating in the Fitbit industry. Your company is dedicated to understanding consumer behavior to enhance product offerings and optimize marketing strategies. You have been tasked with analyzing a comprehensive dataset obtained from Fitbit users to uncover trends and insights. The business objective is to identify key trends, understand their implications for customers, and leverage these insights to shape an effective marketing strategy. The dataset was distributed via Amazon Mechanical Turk between 03.12.2016 and 05.12.2016. Thirty eligible Fitbit users consented to submit personal tracker data, including minute-level output for physical activity, heart rate, and sleep monitoring.

Business Task :- Analyzing Fitbit data to gain insights into consumer behavior and trends to inform marketing strategies.

DATA DESCRIPTION

- **Data Sources:-** Describe all data sources used, including the origin, content, and structure of the datasets contain 18 files like dailyActivity_merged.csv, hourlyCalories_merged.csv, heartrate_seconds_merged, sleepDay_merged,etc..
- **Data Cleaning and Transformation:-** Document any cleaning or manipulation of data performed. Include details on handling missing data and any other preprocessing steps.



UNCLEANED CSV

Hourly Calories

<u>Id</u>	<u>A</u>	<u>B</u>	<u>C</u>
	<u>ActivityHour</u>		<u>Calories</u>
1	1503960366	04-12-2016 00:00	81
2	1503960366	04-12-2016 01:00	61
3	1503960366	04-12-2016 02:00	59
4	1503960366	04-12-2016 03:00	47
5	1503960366	04-12-2016 04:00	48
6	1503960366	04-12-2016 05:00	48
7	1503960366	04-12-2016 06:00	48
8	1503960366	04-12-2016 07:00	47
9	1503960366	04-12-2016 08:00	68
10	1503960366	04-12-2016 09:00	141
11	1503960366	04-12-2016 10:00	99
12	1503960366	04-12-2016 11:00	76
13	1503960366	04-12-2016 12:00	73
14	1503960366	04-12-2016 13:00	66
15	1503960366	04-12-2016 14:00	110
16	1503960366	04-12-2016 15:00	151
17	1503960366	04-12-2016 16:00	76
18	1503960366	04-12-2016 17:00	83
19	1503960366	04-12-2016 18:00	124
20	1503960366	04-12-2016 19:00	104
21	1503960366	04-12-2016 20:00	132
22	1503960366	04-12-2016 21:00	100
23	1503960366	04-12-2016 22:00	65
24	1503960366	04-12-2016 23:00	81
25	1503960366	04/13/2016 12:00:00	69
26	1503960366	04/13/2016 1:00:00	48
27	1503960366	04/13/2016 2:00:00	47
28	1503960366	04/13/2016 3:00:00	53
29	1503960366	04/13/2016 4:00:00	47

Hourly Intensities

	ActivityHour	TotalIntensity	AverageIntensity
1503960366	#####	20	0.333333
1503960366	#####	8	0.133333
1503960366	#####	7	0.116667
1503960366	#####	0	0
1503960366	#####	0	0
1503960366	#####	0	0
1503960366	#####	0	0
1503960366	#####	0	0
1503960366	#####	13	0.216667
1503960366	#####	30	0.5
1503960366	#####	29	0.483333
1503960366	#####	12	0.2
1503960366	#####	11	0.183333
1503960366	#####	6	0.1
1503960366	#####	36	0.6
1503960366	#####	58	0.966667
1503960366	#####	13	0.216667
1503960366	#####	16	0.266667
1503960366	#####	29	0.483333
1503960366	#####	39	0.65
1503960366	#####	41	0.683333
1503960366	#####	31	0.516667
1503960366	#####	9	0.15
1503960366	#####	21	0.35
1503960366	4/13/2016 12:00	14	0.233333
1503960366	4/13/2016 1:00:-	0	0
1503960366	4/13/2016 2:00:-	0	0
1503960366	4/13/2016 3:00:-	4	0.666667
1503960366	4/13/2016 4:00:-	0	0
hourlyIntensities_merged			+

Hourly Steps

d	A	B	C
	ActivityHour	StepTotal	
1503960366	04-12-2016 00:00	373	
1503960366	04-12-2016 01:00	160	
1503960366	04-12-2016 02:00	151	
1503960366	04-12-2016 03:00	0	
1503960366	04-12-2016 04:00	0	
1503960366	04-12-2016 05:00	0	
1503960366	04-12-2016 06:00	0	
1503960366	04-12-2016 07:00	0	
1503960366	04-12-2016 08:00	250	
1503960366	04-12-2016 09:00	1864	
1503960366	04-12-2016 10:00	676	
1503960366	04-12-2016 11:00	360	
1503960366	04-12-2016 12:00	253	
1503960366	04-12-2016 13:00	221	
1503960366	04-12-2016 14:00	1166	
1503960366	04-12-2016 15:00	2063	
1503960366	04-12-2016 16:00	344	
1503960366	04-12-2016 17:00	489	
1503960366	04-12-2016 18:00	1386	
1503960366	04-12-2016 19:00	558	
1503960366	04-12-2016 20:00	1733	
1503960366	04-12-2016 21:00	684	
1503960366	04-12-2016 22:00	89	
1503960366	04-12-2016 23:00	338	
1503960366	4/13/2016 12:00:00 AM	144	
1503960366	4/13/2016 1:00:00 AM	0	
1503960366	4/13/2016 2:00:00 AM	0	
1503960366	4/13/2016 3:00:00 AM	36	
1503960366	4/13/2016 4:00:00 AM	0	
>	hourlySteps_merged		+

Minutes
Calories

A	B	C
	ActivityMinute	Calories
1503960366	04-12-2016 00:00	0.7865
1503960366	04-12-2016 00:01	0.7865
1503960366	04-12-2016 00:02	0.7865
1503960366	04-12-2016 00:03	0.7865
1503960366	04-12-2016 00:04	0.7865
1503960366	04-12-2016 00:05	0.9438
1503960366	04-12-2016 00:06	0.9438
1503960366	04-12-2016 00:07	0.9438
1503960366	04-12-2016 00:08	0.9438
1503960366	04-12-2016 00:09	0.9438
1503960366	04-12-2016 00:10	0.9438
1503960366	04-12-2016 00:11	0.9438
1503960366	04-12-2016 00:12	0.7865
1503960366	04-12-2016 00:13	0.7865
1503960366	04-12-2016 00:14	0.9438
1503960366	04-12-2016 00:15	0.7865
1503960366	04-12-2016 00:16	0.9438
1503960366	04-12-2016 00:17	0.7865
1503960366	04-12-2016 00:18	0.7865
1503960366	04-12-2016 00:19	0.7865
1503960366	04-12-2016 00:20	0.9438
1503960366	04-12-2016 00:21	0.9438
1503960366	04-12-2016 00:22	0.9438
1503960366	04-12-2016 00:23	0.9438
1503960366	04-12-2016 00:24	0.9438
1503960366	04-12-2016 00:25	2.0449
1503960366	04-12-2016 00:26	0.9438
1503960366	04-12-2016 00:27	0.9438
1503960366	04-12-2016 00:28	0.9438

Minutes Intensities

	ActivityMinute	Intensity
1503960366	04-12-2016:00:00	0
1503960366	04-12-2016:00:01	0
1503960366	04-12-2016:00:02	0
1503960366	04-12-2016:00:03	0
1503960366	04-12-2016:00:04	0
1503960366	04-12-2016:00:05	0
1503960366	04-12-2016:00:06	0
1503960366	04-12-2016:00:07	0
1503960366	04-12-2016:00:08	0
1503960366	04-12-2016:00:09	0
1503960366	04-12-2016:00:10	0
1503960366	04-12-2016:00:11	0
1503960366	04-12-2016:00:12	0
1503960366	04-12-2016:00:13	0
1503960366	04-12-2016:00:14	0
1503960366	04-12-2016:00:15	0
1503960366	04-12-2016:00:16	0
1503960366	04-12-2016:00:17	0
1503960366	04-12-2016:00:18	0
1503960366	04-12-2016:00:19	0
1503960366	04-12-2016:00:20	0
1503960366	04-12-2016:00:21	0
1503960366	04-12-2016:00:22	0
1503960366	04-12-2016:00:23	0
1503960366	04-12-2016:00:24	0
1503960366	04-12-2016:00:25	1
1503960366	04-12-2016:00:26	0
1503960366	04-12-2016:00:27	0
1503960366	04-12-2016:00:28	0
minuteIntensitiesNarrow_merg		

Minutes Mets

A	B	C
	ActivityMinute	METs
1503960366	04-12-2016 00:00	10
1503960366	04-12-2016 00:01	10
1503960366	04-12-2016 00:02	10
1503960366	04-12-2016 00:03	10
1503960366	04-12-2016 00:04	10
1503960366	04-12-2016 00:05	12
1503960366	04-12-2016 00:06	12
1503960366	04-12-2016 00:07	12
1503960366	04-12-2016 00:08	12
1503960366	04-12-2016 00:09	12
1503960366	04-12-2016 00:10	12
1503960366	04-12-2016 00:11	12
1503960366	04-12-2016 00:12	10
1503960366	04-12-2016 00:13	10
1503960366	04-12-2016 00:14	12
1503960366	04-12-2016 00:15	10
1503960366	04-12-2016 00:16	12
1503960366	04-12-2016 00:17	10
1503960366	04-12-2016 00:18	10
1503960366	04-12-2016 00:19	10
1503960366	04-12-2016 00:20	12
1503960366	04-12-2016 00:21	12
1503960366	04-12-2016 00:22	12
1503960366	04-12-2016 00:23	12
1503960366	04-12-2016 00:24	12
1503960366	04-12-2016 00:25	26
1503960366	04-12-2016 00:26	12
1503960366	04-12-2016 00:27	12
1503960366	04-12-2016 00:28	12

Minutes Steps

	ActivityMinute	Steps
1503960366	04-12-2016 00:00	0
1503960366	04-12-2016 00:01	0
1503960366	04-12-2016 00:02	0
1503960366	04-12-2016 00:03	0
1503960366	04-12-2016 00:04	0
1503960366	04-12-2016 00:05	0
1503960366	04-12-2016 00:06	0
1503960366	04-12-2016 00:07	0
1503960366	04-12-2016 00:08	0
1503960366	04-12-2016 00:09	0
1503960366	04-12-2016 00:10	0
1503960366	04-12-2016 00:11	0
1503960366	04-12-2016 00:12	0
1503960366	04-12-2016 00:13	0
1503960366	04-12-2016 00:14	0
1503960366	04-12-2016 00:15	0
1503960366	04-12-2016 00:16	0
1503960366	04-12-2016 00:17	0
1503960366	04-12-2016 00:18	0
1503960366	04-12-2016 00:19	0
1503960366	04-12-2016 00:20	0
1503960366	04-12-2016 00:21	0
1503960366	04-12-2016 00:22	0
1503960366	04-12-2016 00:23	0
1503960366	04-12-2016 00:24	0
1503960366	04-12-2016 00:25	7
1503960366	04-12-2016 00:26	0
1503960366	04-12-2016 00:27	0
1503960366	04-12-2016 00:28	0

Daily Activity

Heartrate Seconds

A	B	C
Time	Value	
2022484408	04-12-2016 07:21	97
2022484408	04-12-2016 07:21	102
2022484408	04-12-2016 07:21	105
2022484408	04-12-2016 07:21	103
2022484408	04-12-2016 07:21	101
2022484408	04-12-2016 07:22	95
2022484408	04-12-2016 07:22	91
2022484408	04-12-2016 07:22	93
2022484408	04-12-2016 07:22	94
2022484408	04-12-2016 07:22	93
2022484408	04-12-2016 07:22	92
2022484408	04-12-2016 07:22	89
2022484408	04-12-2016 07:22	83
2022484408	04-12-2016 07:22	61
2022484408	04-12-2016 07:23	60
2022484408	04-12-2016 07:23	61
2022484408	04-12-2016 07:23	61
2022484408	04-12-2016 07:23	57
2022484408	04-12-2016 07:23	54
2022484408	04-12-2016 07:23	55
2022484408	04-12-2016 07:24	58
2022484408	04-12-2016 07:24	60
2022484408	04-12-2016 07:24	59
2022484408	04-12-2016 07:24	57
2022484408	04-12-2016 07:24	56
2022484408	04-12-2016 07:24	58
2022484408	04-12-2016 07:25	57
2022484408	04-12-2016 07:25	58
2022484408	04-12-2016 07:25	60

Sleep Day

A	B	C	D	E
Id	SleepDay	TotalSleep	TotalMinut	TotalTimeInBed
1503960366	#####	1	327	346
1503960366	4/13/2016 12:00	2	384	407
1503960366	4/15/2016 12:00	1	412	442
1503960366	4/16/2016 12:00	2	340	367
1503960366	4/17/2016 12:00	1	700	712
1503960366	4/19/2016 12:00	1	304	320
1503960366	4/20/2016 12:00	1	360	377
1503960366	4/21/2016 12:00	1	325	364
1503960366	4/23/2016 12:00	1	361	384
1503960366	4/24/2016 12:00	1	430	449
1503960366	4/25/2016 12:00	1	277	323
1503960366	4/26/2016 12:00	1	245	274
1503960366	4/28/2016 12:00	1	366	393
1503960366	4/29/2016 12:00	1	341	354
1503960366	4/30/2016 12:00	1	404	425
1503960366	#####	1	369	396
1503960366	#####	1	277	309
1503960366	#####	1	273	296
1503960366	#####	1	247	264
1503960366	#####	1	334	367
1503960366	#####	1	331	349
1503960366	#####	1	594	611
1503960366	#####	1	338	342
1503960366	#####	1	383	403
1503960366	#####	1	285	306
1644430081	4/29/2016 12:00	1	119	127
1644430081	4/30/2016 12:00	1	124	142
1644430081	#####	1	796	961
1644430081	#####	1	137	154
	sleepDay_merged	+		

Minute Sleep

Id	date	value	logId
1503960366	04-12-2016 02:47	3	11380564589
1503960366	04-12-2016 02:48	2	11380564589
1503960366	04-12-2016 02:49	1	11380564589
1503960366	04-12-2016 02:50	1	11380564589
1503960366	04-12-2016 02:51	1	11380564589
1503960366	04-12-2016 02:52	1	11380564589
1503960366	04-12-2016 02:53	1	11380564589
1503960366	04-12-2016 02:54	2	11380564589
1503960366	04-12-2016 02:55	2	11380564589
1503960366	04-12-2016 02:56	2	11380564589
1503960366	04-12-2016 02:57	3	11380564589
1503960366	04-12-2016 02:58	3	11380564589
1503960366	04-12-2016 02:59	3	11380564589
1503960366	04-12-2016 03:00	3	11380564589
1503960366	04-12-2016 03:01	3	11380564589
1503960366	04-12-2016 03:02	2	11380564589
1503960366	04-12-2016 03:03	1	11380564589
1503960366	04-12-2016 03:04	1	11380564589
1503960366	04-12-2016 03:05	1	11380564589
1503960366	04-12-2016 03:06	1	11380564589
1503960366	04-12-2016 03:07	1	11380564589
1503960366	04-12-2016 03:08	1	11380564589
1503960366	04-12-2016 03:09	1	11380564589
1503960366	04-12-2016 03:10	1	11380564589
1503960366	04-12-2016 03:11	1	11380564589
1503960366	04-12-2016 03:12	1	11380564589
1503960366	04-12-2016 03:13	1	11380564589
1503960366	04-12-2016 03:14	1	11380564589
1503960366	04-12-2016 03:15	1	11380564589

Weight Log

Id	Date	Weightkg	WeightPou	Fat	BMI	IsManualR	LogId
1503960366	#####	52.6	115.9631	22	22.65	TRUE	1.46223E+12
1503960366	#####	52.6	115.9631		22.65	TRUE	1.46223E+12
1927972279	4/13/2016 1:06	133.5	294.3171		47.54	FALSE	1.46051E+12
2873212765	4/21/2016 11:5	56.5	125.0021		21.45	TRUE	1.46128E+12
2873212765	4/21/2016 11:5	57.3	126.3249		21.69	TRUE	1.46311E+12
4319703577	4/17/2016 11:5	72.4	159.6147	25	27.45	TRUE	1.46094E+12
4319703577	4/17/2016 11:5	72.3	159.3942		27.38	TRUE	1.46241E+12
4558609924	4/18/2016 11:5	69.7	153.6622		27.25	TRUE	1.46102E+12
4558609924	4/20/2016 11:5	70.3	154.985		27.46	TRUE	1.46163E+12
4558609924	4/20/2016 11:5	69.9	154.1031		27.32	TRUE	1.46215E+12
4558609924	4/20/2016 11:5	69.2	152.5599		27.04	TRUE	1.46223E+12
4558609924	4/20/2016 11:5	69.1	152.3394		27	TRUE	1.46284E+12
5771150313	4/17/2016 9:17	90.7	199.9593		28	FALSE	1.46011E+12
6962181067	#####	62.5	137.7889		24.39	TRUE	1.46051E+12
6962181067	4/13/2016 11:5	62.1	136.9071		24.24	TRUE	1.46059E+12
6962181067	4/14/2016 11:5	61.7	136.0252		24.1	TRUE	1.46088E+12
6962181067	4/15/2016 11:5	61.5	135.5843		24	TRUE	1.46076E+12
6962181067	4/16/2016 11:5	62	136.6866		24.21	TRUE	1.46085E+12
6962181067	4/17/2016 11:5	61.4	135.3638		23.96	TRUE	1.46094E+12
6962181067	4/18/2016 11:5	61.2	134.9229		23.89	TRUE	1.46102E+12
6962181067	4/19/2016 11:5	61.4	135.3638		23.96	TRUE	1.46111E+12
6962181067	4/20/2016 11:5	61.7	136.0252		24.1	TRUE	1.4612E+12
6962181067	4/21/2016 11:5	61.4	135.3638		23.96	TRUE	1.46128E+12
6962181067	4/22/2016 11:5	61.4	135.3638		23.96	TRUE	1.46137E+12
6962181067	4/23/2016 11:5	61.5	135.5843		24	TRUE	1.46146E+12
6962181067	4/24/2016 11:5	61.5	135.5843		24	TRUE	1.46154E+12
6962181067	4/25/2016 11:5	61.7	136.0252		24.1	TRUE	1.46163E+12
6962181067	4/27/2016 11:5	61.2	134.9229		23.89	TRUE	1.46181E+12
6962181067	4/28/2016 11:5	61.2	134.9229		23.89	TRUE	1.46189E+12

CLEANED & MERGED CSV

Hourly Activity

Id	ActivityHour	Calories	TotalIntens	AverageInt	StepTotal							
						B	C	D	E	F	G	H
1503960366	12-04-2016 00:00	81	20	0.333333	373							
1503960366	12-04-2016 01:00	61	8	0.133333	160							
1503960366	12-04-2016 02:00	59	7	0.116667	151							
1503960366	12-04-2016 03:00	47	0	0	0							
1503960366	12-04-2016 04:00	48	0	0	0							
1503960366	12-04-2016 05:00	48	0	0	0							
1503960366	12-04-2016 06:00	48	0	0	0							
1503960366	12-04-2016 07:00	47	0	0	0							
1503960366	12-04-2016 08:00	68	13	0.216667	250							
1503960366	12-04-2016 09:00	141	30	0.5	1864							
1503960366	12-04-2016 10:00	99	29	0.483333	676							
1503960366	12-04-2016 11:00	76	12	0.2	360							
1503960366	12-04-2016 12:00	73	11	0.183333	253							
1503960366	12-04-2016 13:00	66	6	0.1	221							
1503960366	12-04-2016 14:00	110	36	0.6	1166							
1503960366	12-04-2016 15:00	151	58	0.966667	2063							
1503960366	12-04-2016 16:00	76	13	0.216667	344							
1503960366	12-04-2016 17:00	83	16	0.266667	489							
1503960366	12-04-2016 18:00	124	29	0.483333	1386							
1503960366	12-04-2016 19:00	104	39	0.65	558							
1503960366	12-04-2016 20:00	132	41	0.683333	1733							
1503960366	12-04-2016 21:00	100	31	0.516667	684							
1503960366	12-04-2016 22:00	65	9	0.15	89							
1503960366	12-04-2016 23:00	81	21	0.35	338							
1503960366	13-04-2016 00:00	69	14	0.233333	144							
1503960366	13-04-2016 01:00	48	0	0	0							
1503960366	13-04-2016 02:00	47	0	0	0							
1503960366	13-04-2016 03:00	53	4	0.066667	36							
1503960366	13-04-2016 04:00	47	0	0	0							

Weight Log

Id	Date	WeightKg	WeightPou	Fat	BMI	IsManualR	LogId						
								B	C	D	E	F	G
1503960366	02-05-2016 23:59	52.6	115.9631		22	22.65	1	1.46E+12					
1503960366	03-05-2016 23:59	52.6	115.9631		0	22.65	1	1.46E+12					
1927972279	13-04-2016 01:08	133.5	294.3171		0	47.54	0	1.46E+12					
2873212765	21-04-2016 23:59	56.7	125.0021		0	21.45	1	1.46E+12					
2873212765	12-05-2016 23:59	57.3	126.3249		0	21.69	1	1.46E+12					
4319703577	17-04-2016 23:59	72.4	159.6147		25	27.45	1	1.46E+12					
4319703577	04-05-2016 23:59	72.3	159.3942		0	27.38	1	1.46E+12					
4558609924	18-04-2016 23:59	69.7	153.6622		0	27.25	1	1.46E+12					
4558609924	25-04-2016 23:59	70.3	154.985		0	27.46	1	1.46E+12					
4558609924	01-05-2016 23:59	69.9	154.1031		0	27.32	1	1.46E+12					
4558609924	02-05-2016 23:59	69.2	152.5599		0	27.04	1	1.46E+12					
4558609924	09-05-2016 23:59	69.1	152.3394		0	27	1	1.46E+12					
5577150313	17-04-2016 09:17	90.7	199.9593		0	28	0	1.46E+12					
6962181067	12-04-2016 23:59	62.5	137.7889		0	24.39	1	1.46E+12					
6962181067	13-04-2016 23:59	62.1	136.9071		0	24.24	1	1.46E+12					
6962181067	14-04-2016 23:59	61.7	136.0252		0	24.1	1	1.46E+12					
6962181067	15-04-2016 23:59	61.5	135.5843		0	24	1	1.46E+12					
6962181067	16-04-2016 23:59	62	136.6866		0	24.21	1	1.46E+12					
6962181067	17-04-2016 23:59	61.4	135.3638		0	23.96	1	1.46E+12					
6962181067	18-04-2016 23:59	61.2	134.9229		0	23.89	1	1.46E+12					
6962181067	19-04-2016 23:59	61.4	135.3638		0	23.96	1	1.46E+12					
6962181067	20-04-2016 23:59	61.7	136.0252		0	24.1	1	1.46E+12					
6962181067	21-04-2016 23:59	61.4	135.3638		0	23.96	1	1.46E+12					
6962181067	22-04-2016 23:59	61.4	135.3638		0	23.96	1	1.46E+12					
6962181067	23-04-2016 23:59	61.5	135.5843		0	24	1	1.46E+12					
6962181067	24-04-2016 23:59	61.5	135.5843		0	24	1	1.46E+12					
6962181067	25-04-2016 23:59	61.7	136.0252		0	24.1	1	1.46E+12					
6962181067	26-04-2016 23:59	61.2	134.9229		0	23.89	1	1.46E+12					
6962181067	27-04-2016 23:59	61.2	134.9229		0	23.89	1	1.46E+12					
6962181067	28-04-2016 23:59	61.2	134.9229		0	23.89	1	1.46E+12					

Minutes Activity

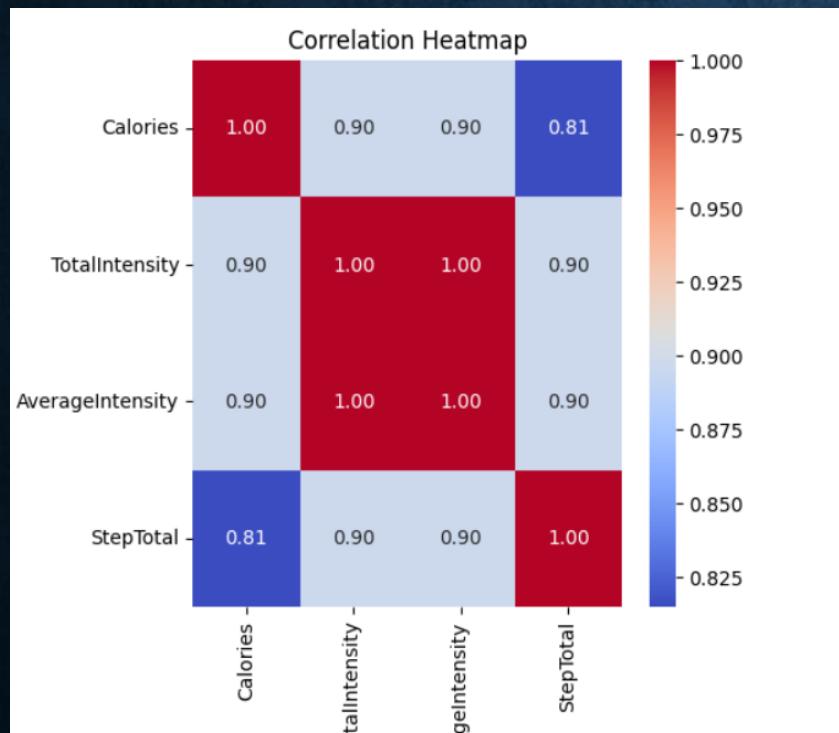
Id	ActivityMinute	Calories	Intensity	METs	Steps							
						B	C	D	E	F	G	H
1503960366	12-04-2016 00:00	0	0.7865	0	0	10	0	0	0	0	0	0
1503960366	12-04-2016 00:01	0	0.7865	0	0	10	0	0	0	0	0	0
1503960366	12-04-2016 00:02	0	0.7865	0	0	10	0	0	0	0	0	0
1503960366	12-04-2016 00:03	0	0.7865	0	0	10	0	0	0	0	0	0
1503960366	12-04-2016 00:04	0	0.7865	0	0	10	0	0	0	0	0	0
1503960366	12-04-2016 00:05	0	0.7865	0	0	10	0	0	0	0	0	0
1503960366	12-04-2016 00:06	0	0.7865	0	0	10	0	0	0	0	0	0
1503960366	12-04-2016 00:07	0	0.7865	0	0	10	0	0	0	0	0	0
1503960366	12-04-2016 00:08	0	0.7865	0	0	10	0	0	0	0	0	0
1503960366	12-04-2016 00:09	0	0.7865	0	0	10	0	0	0	0	0	0
1503960366	12-04-2016 00:10	0	0.7865	0	0	10	0	0	0	0	0	0
1503960366	12-04-2016 00:11	0	0.7865	0	0	10	0	0	0	0	0	0
1503960366	12-04-2016 00:12	0	0.7865	0	0	10	0	0	0	0	0	0
1503960366	12-04-2016 00:13	0	0.7865	0	0	10	0	0	0	0	0	0
1503960366	12-04-2016 00:14	0	0.7865	0	0	10	0	0	0	0	0	0
1503960366	12-04-2016 00:15	0	0.7865	0	0	10	0	0	0	0	0	0
1503960366	12-04-2016 00:16	0	0.7865	0	0	10	0	0	0	0	0	0
1503960366	12-04-2016 00:17	0	0.7865	0	0	10	0	0	0	0	0	0
1503960366	12-04-2016 00:18	0	0.7865	0	0	10	0	0	0	0	0	0
1503960366	12-04-2016 00:19	0	0.7865	0	0	10	0	0	0	0	0	0
1503960366	12-04-2016 00:20	0	0.7865	0	0	10	0	0	0	0	0	0
1503960366	12-04-2016 00:21	0	0.7865	0	0	10	0	0	0	0	0	0
1503960366	12-04-2016 00:22	0	0.7865	0	0	10	0	0	0	0		

EXPLORATORY DATA ANALYSIS

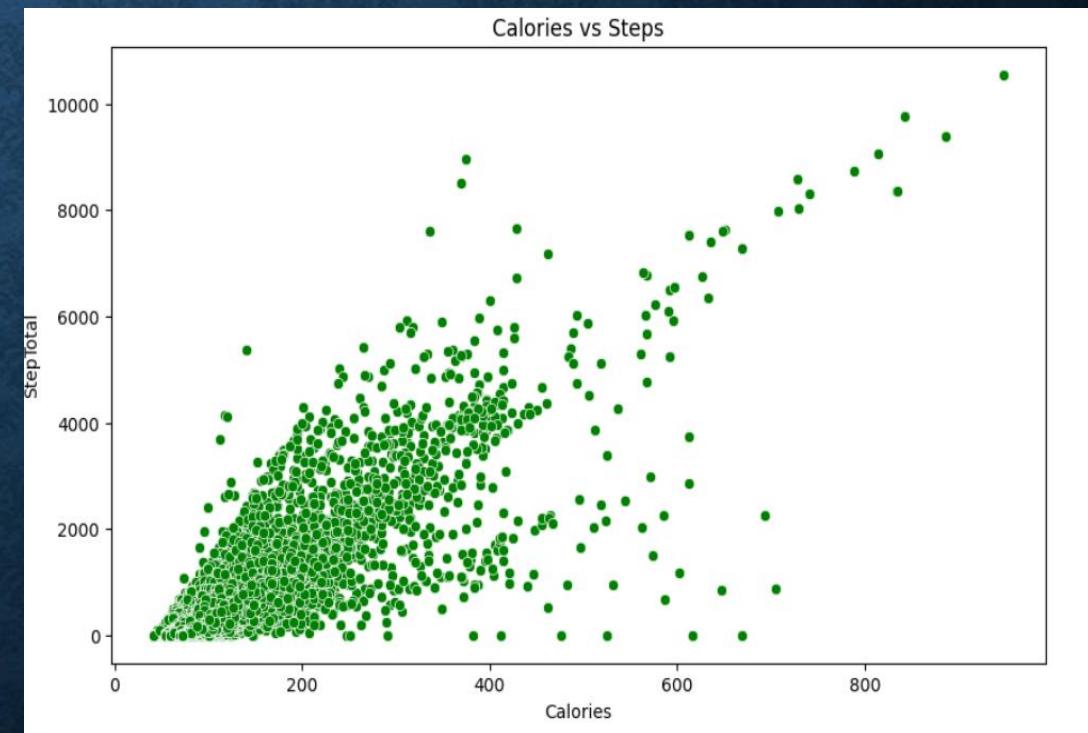
- **Physical Activity Analysis:** Explore the distribution of physical activity data. Present key findings with visualizations (e.g., histograms, bar charts).
- **Heart Rate Analysis:** Analyze heart rate data, identifying patterns or anomalies. Use visual aids to present findings.
- **Sleep Analysis:** Examine sleep patterns, durations, and variations. Include relevant visualizations.

EXPLORATORY DATA ANALYSIS

Hourly Activity Merged

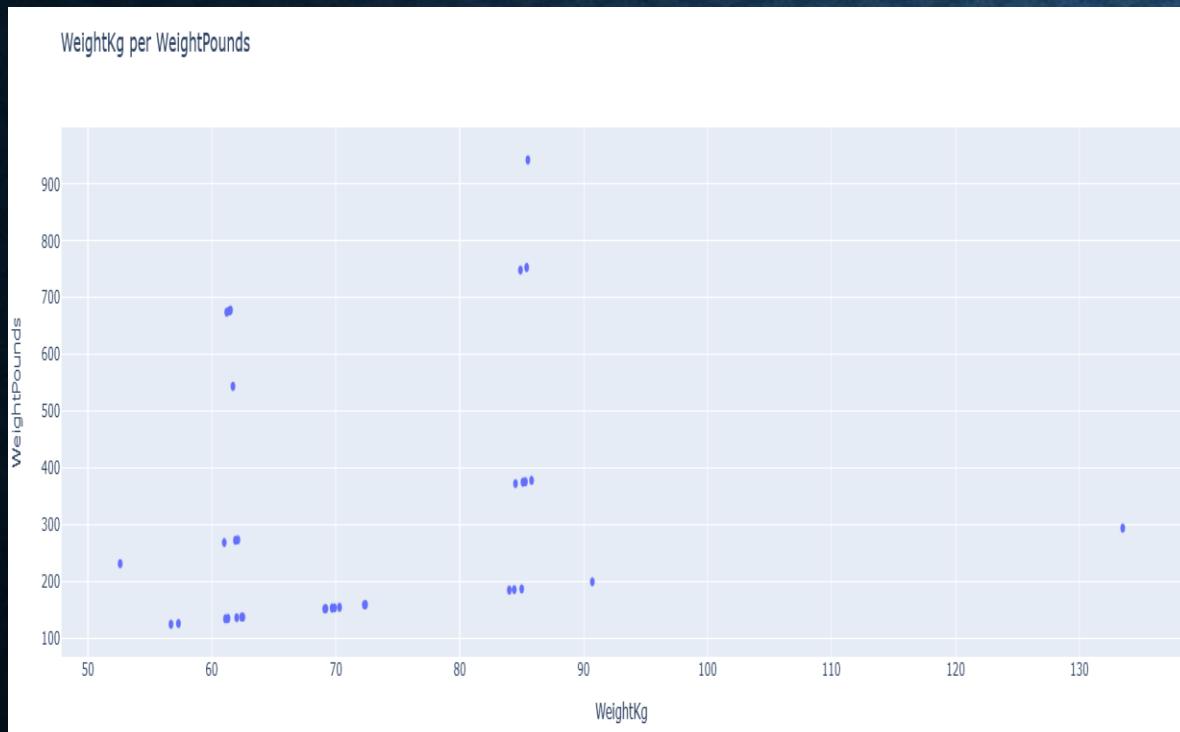


Hourly Activity Merged

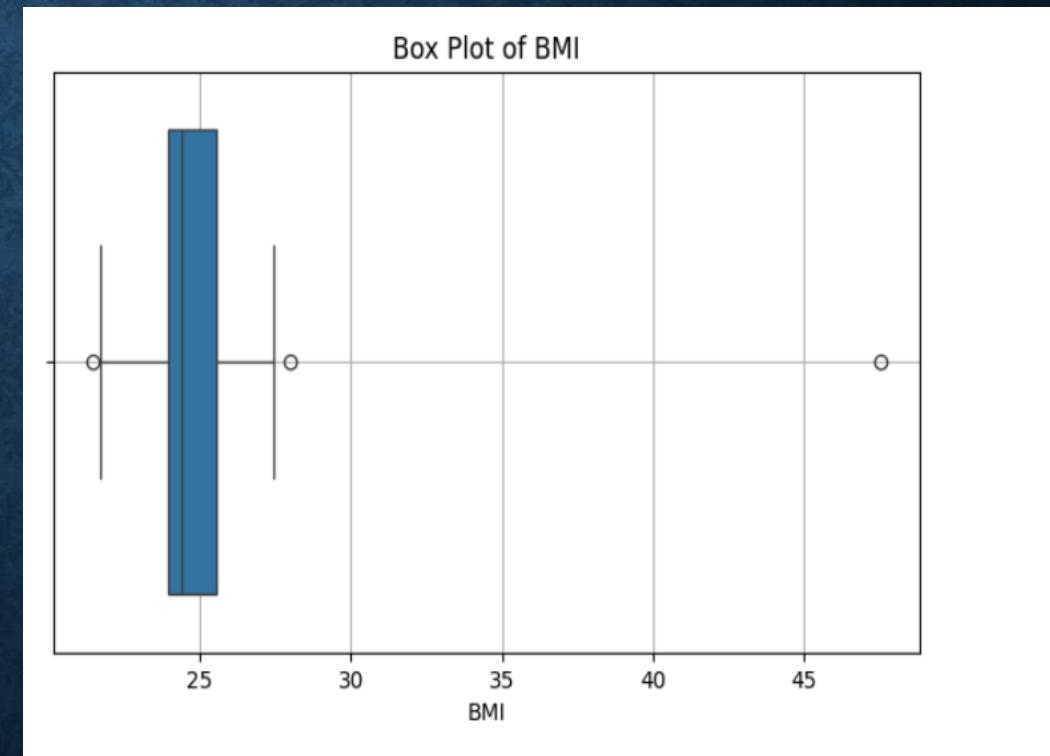


EXPLORATORY DATA ANALYSIS

Weight Log

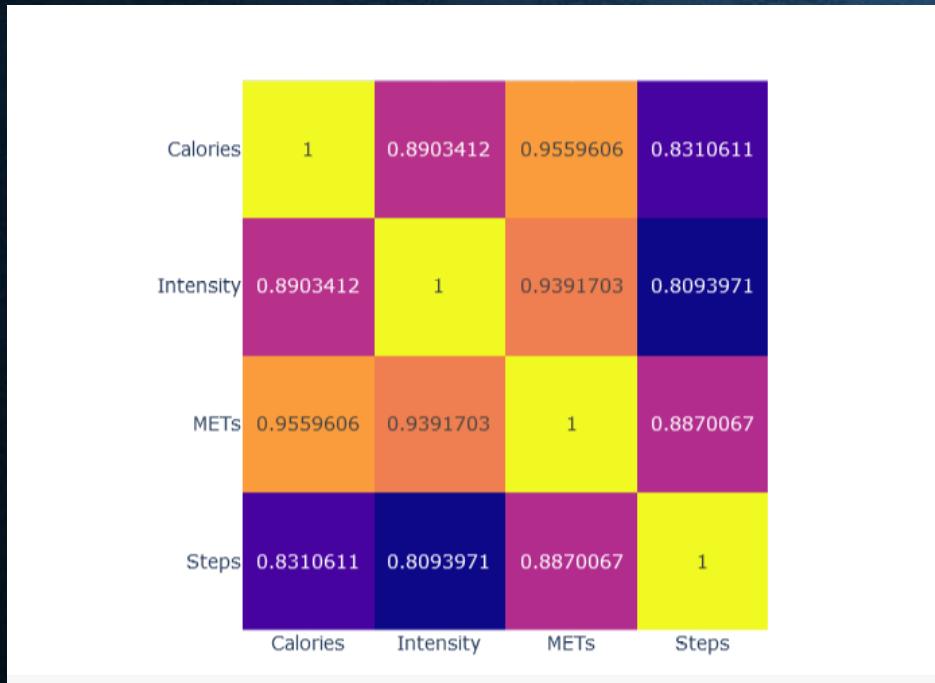


Weight Log

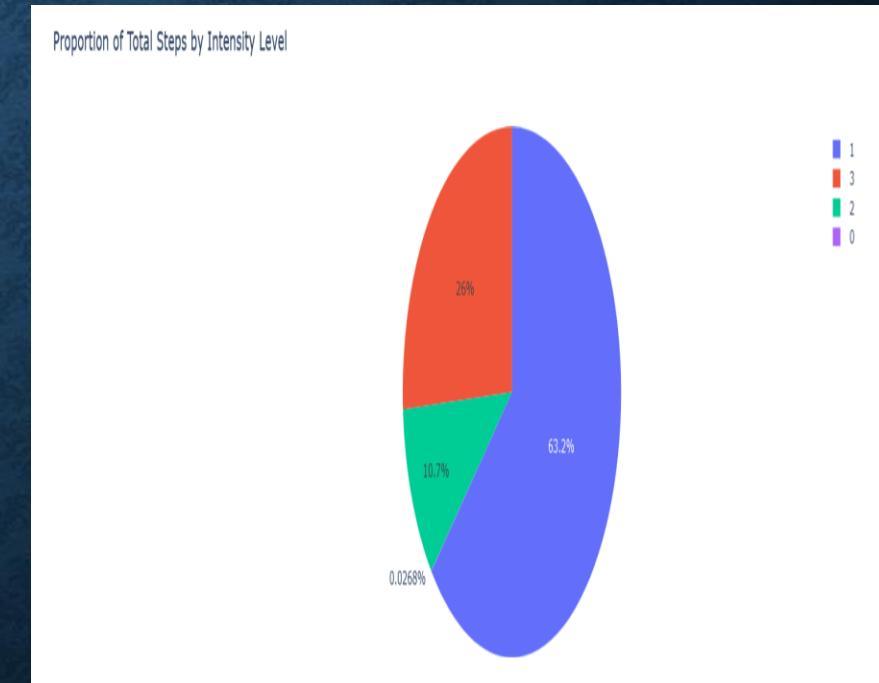


EXPLORATORY DATA ANALYSIS

Minutes Activity

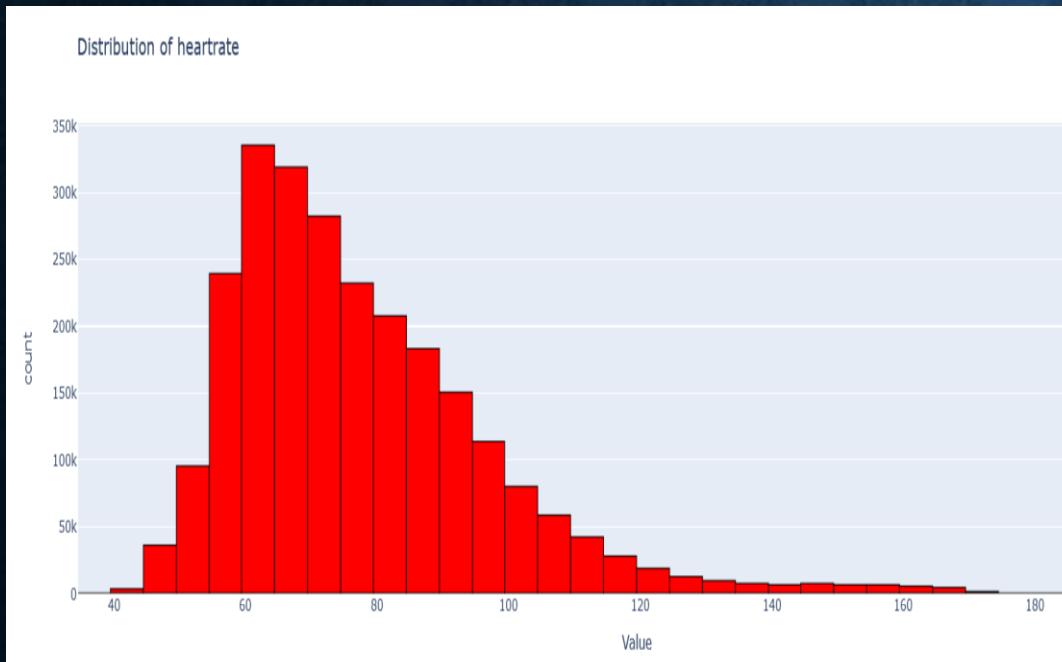


Minutes Activity

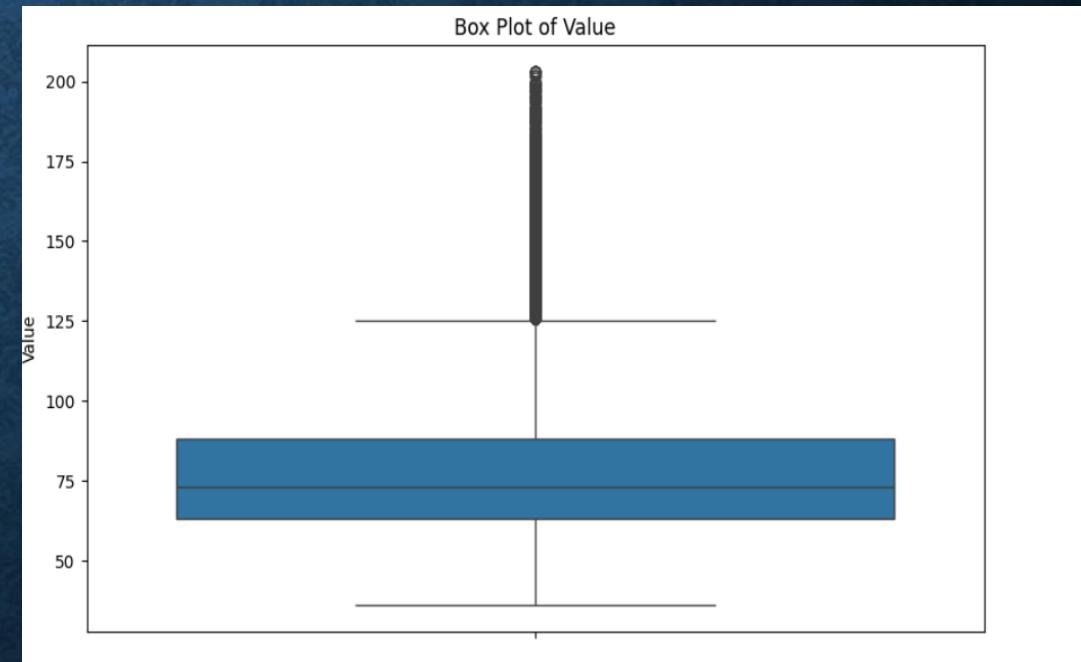


EXPLORATORY DATA ANALYSIS

Heart Rate

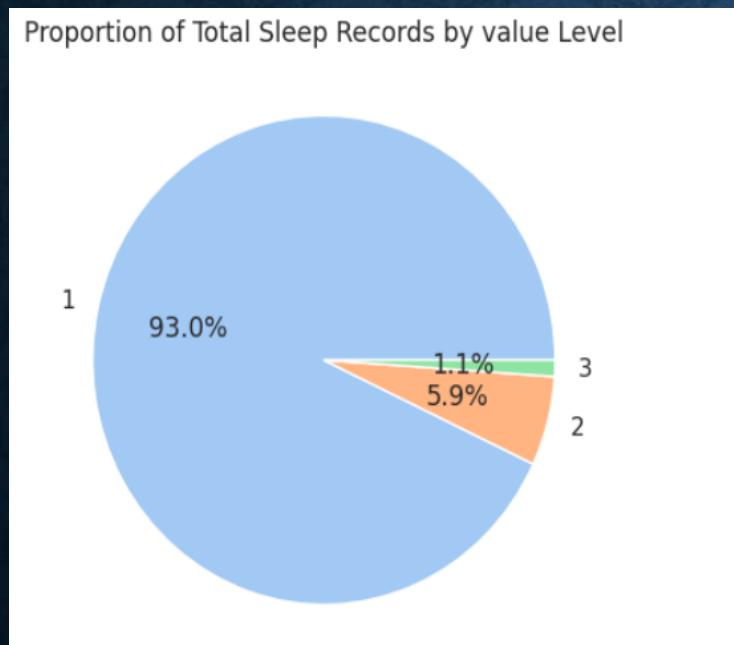


Heart Rate

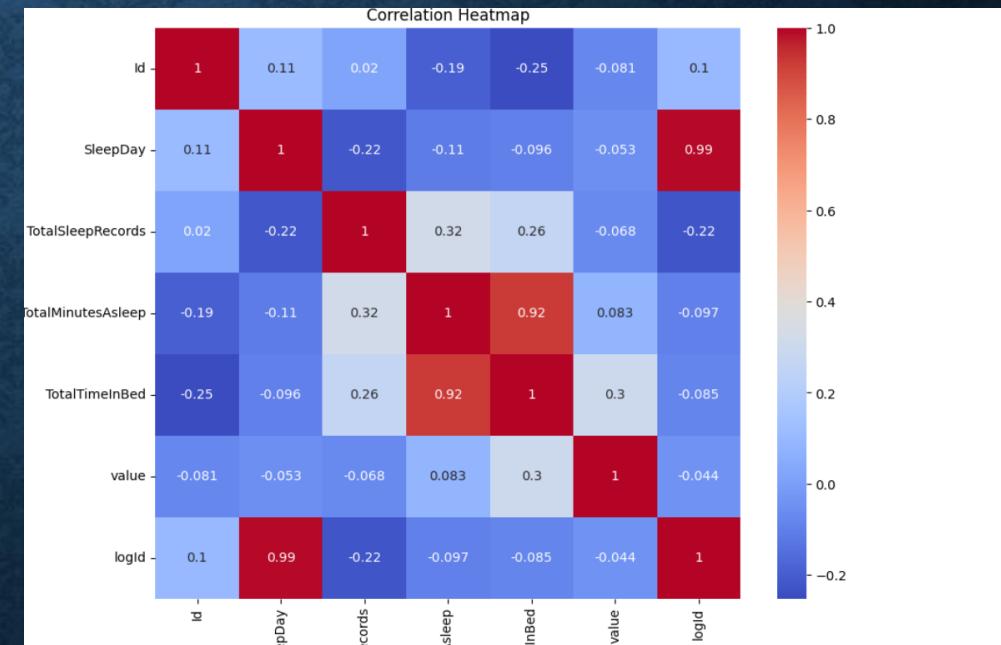


EXPLORATORY DATA ANALYSIS

Sleep Data

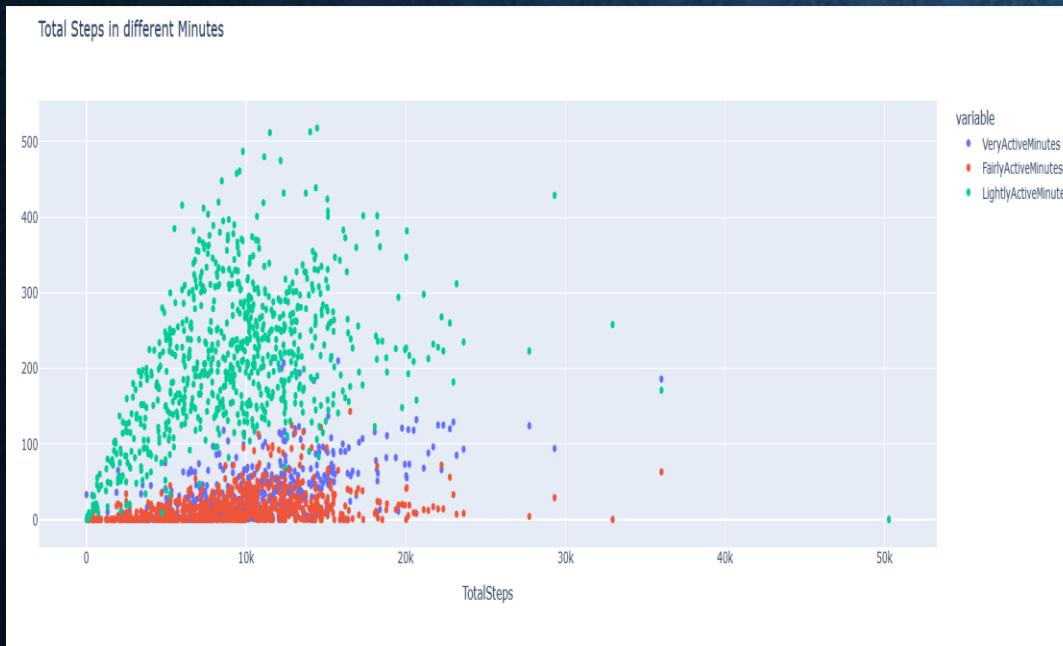


Sleep Data



EXPLORATORY DATA ANALYSIS

Daily Activity



Daily Activity

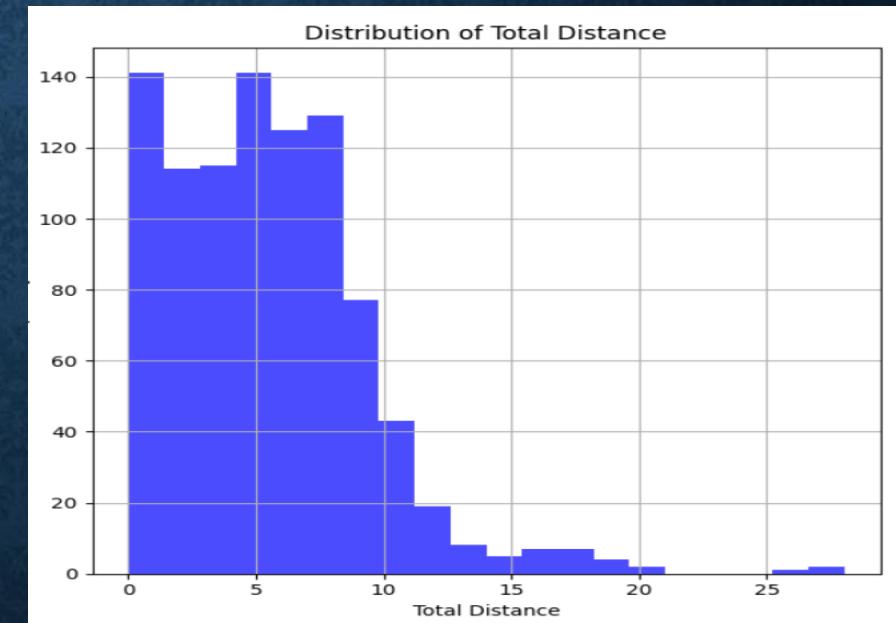


TABLEAU DASHBOARD

- Creating visualizations and a Tableau dashboard to present the key findings.
- The dashboard should be user-friendly and visually appealing, facilitating easy interpretation of the trends.

DAILY ACTIVITY DASHBOARD

[LINK](#)

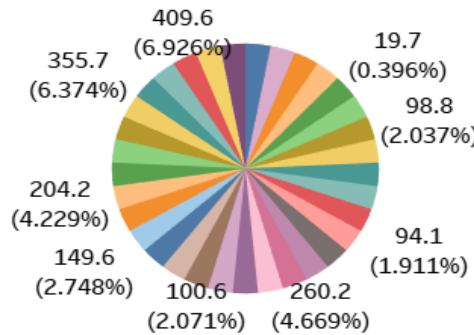
DAILY ACTIVITY DASHBOARD

Day of Activity Date

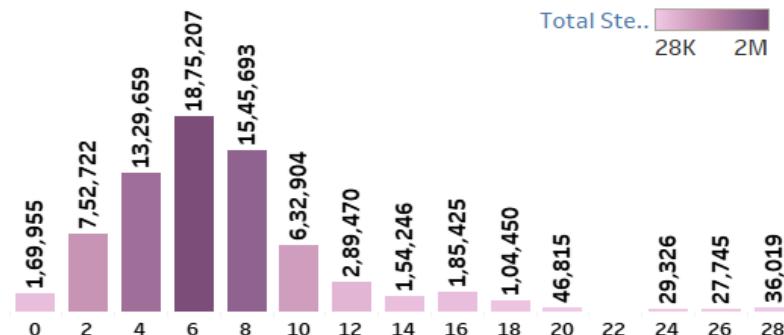
Designed by Aayushi Gupta



Total Steps wise Total Distance



Tracker Distance by steps

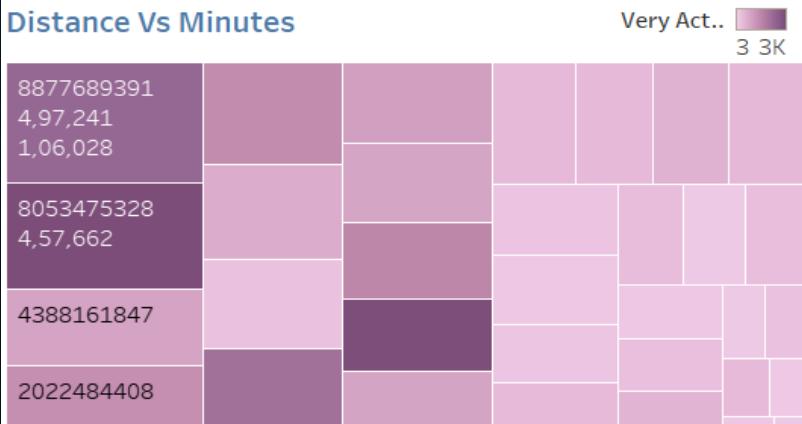


Bin size

Id Vary to Distance

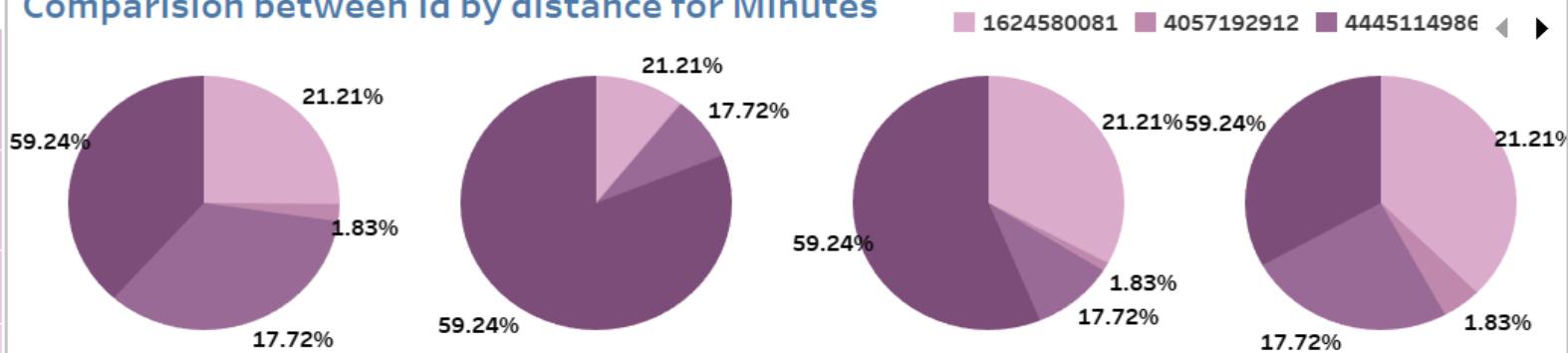


Distance Vs Minutes



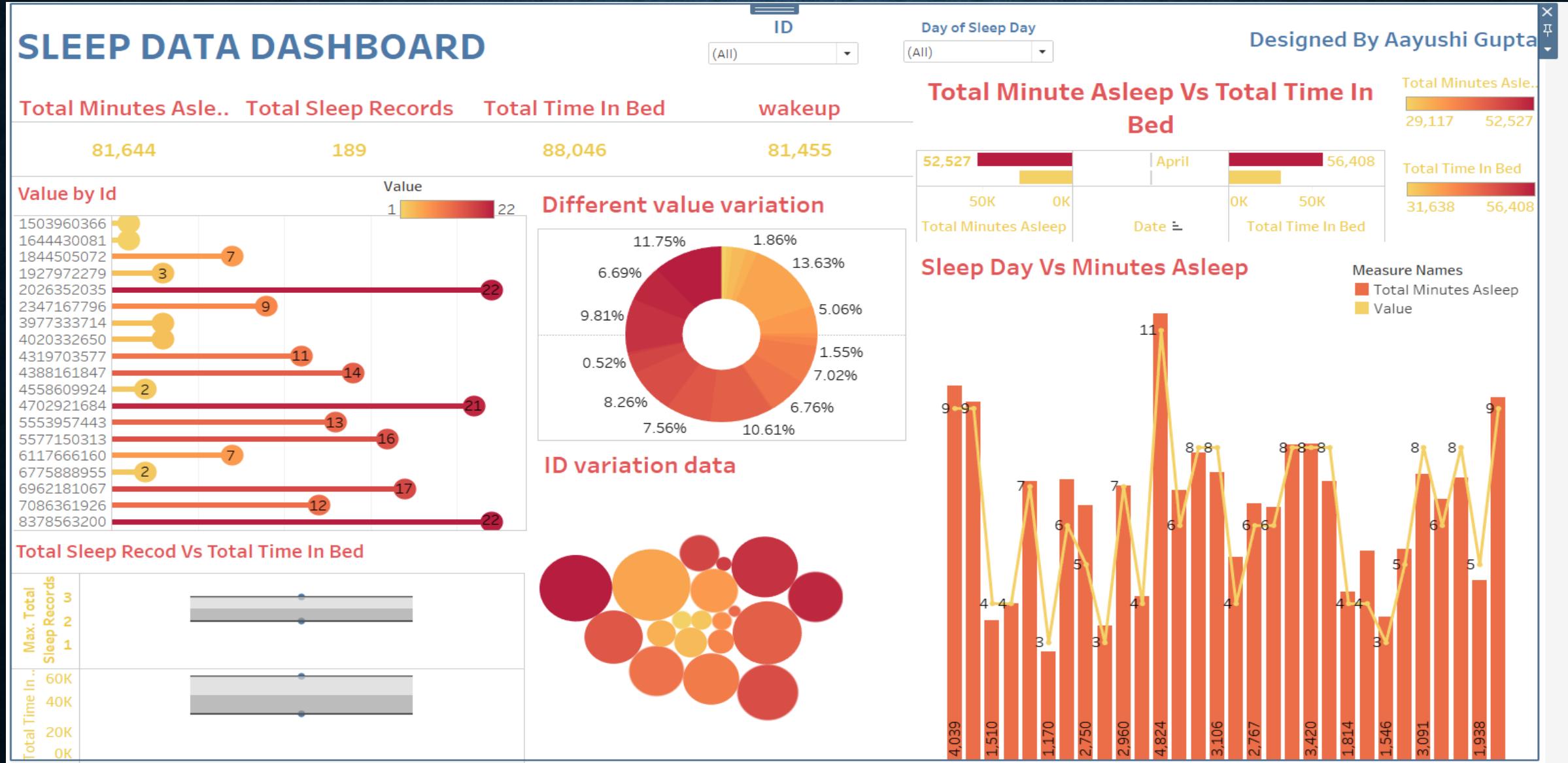
Very Act..

Comparision between Id by distance for Minutes



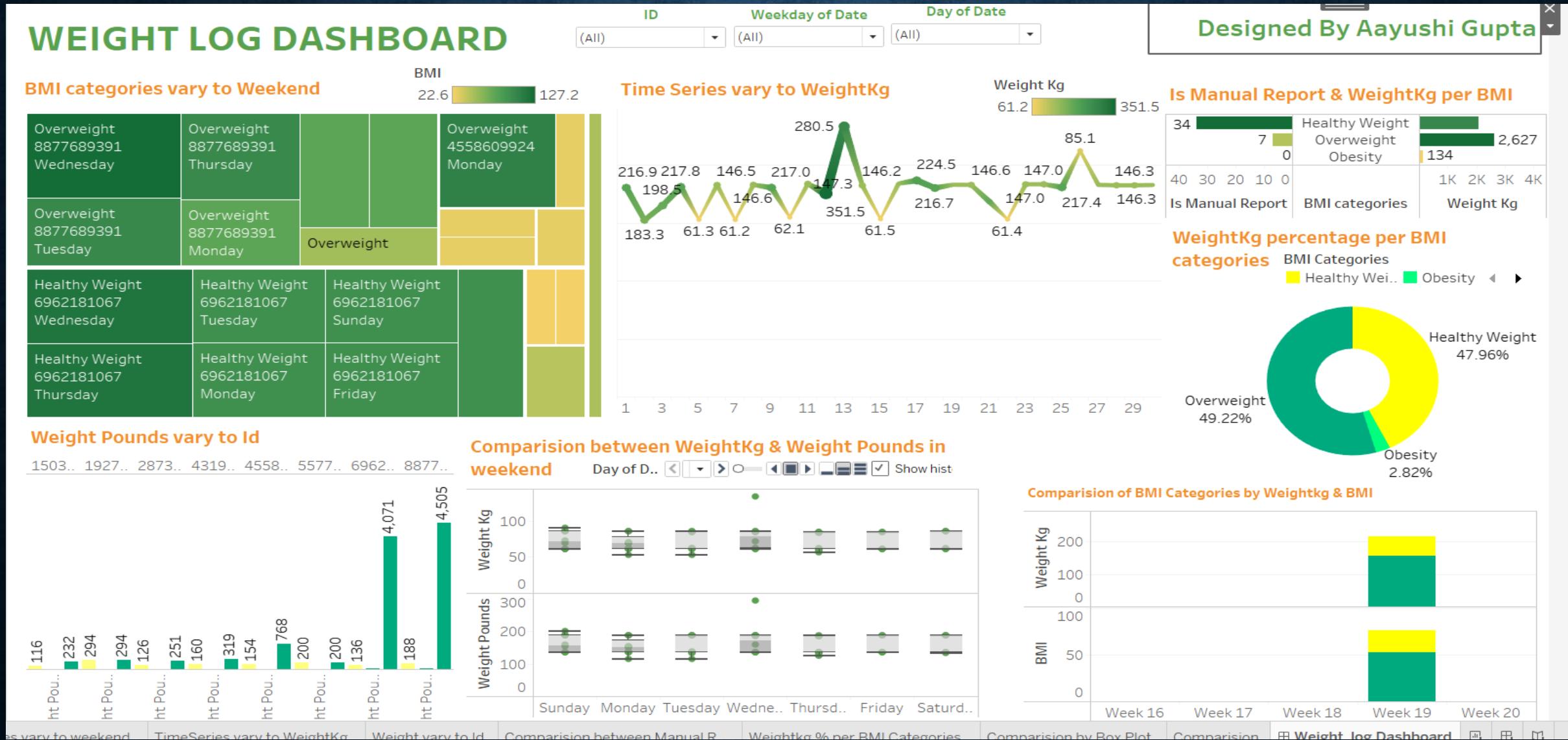
SLEEP DATA DASHBOARD

[LINK](#)



WEIGHT LOG DASHBOARD

[LINK](#)

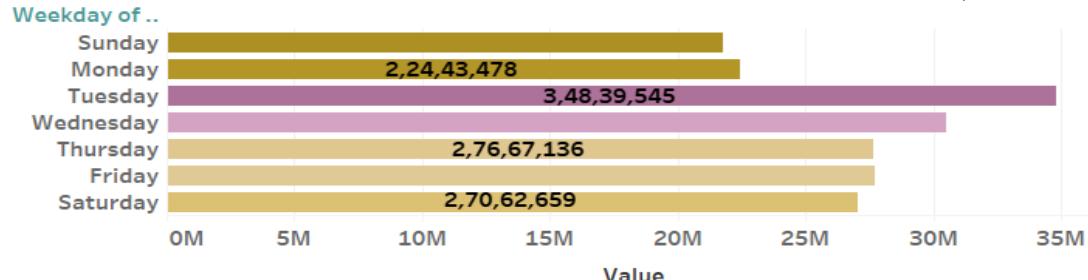


HEART RATE DASHBOARD

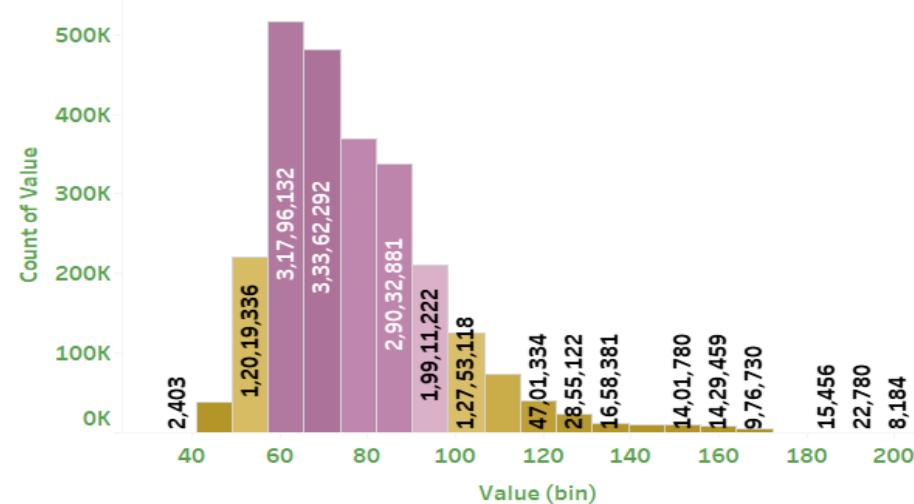
[LINK](#)

HEART RATE ANALYSIS DASHBOARD

Heart Rate by WeekDay



HeartRate Values By Histogram



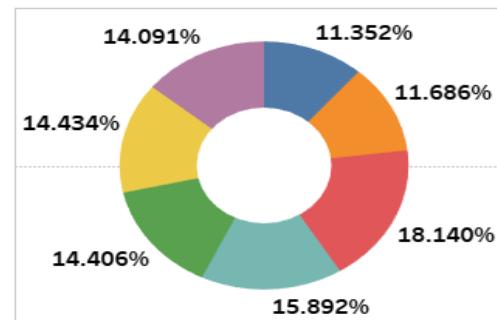
ID Weekday of Time

HeartRate over time

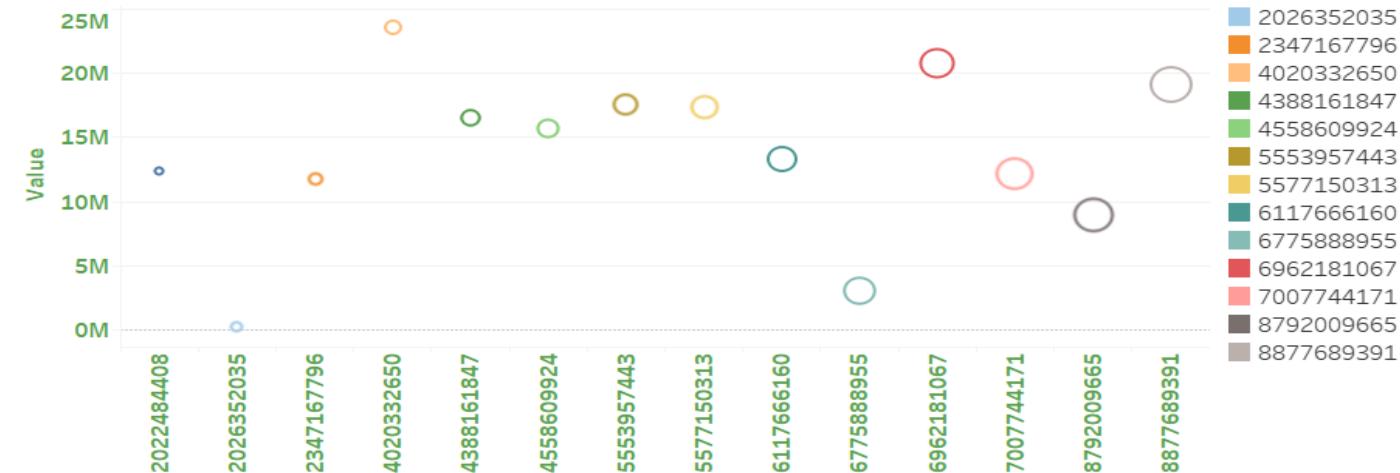
Id	Time	
	April	May
2022484408	75,55,488	48,09,333
2026352035	64,527	1,68,976
2347167796	1,17,14,266	
4020332650	48,51,287	1,86,42,318
4388161847	1,02,45,225	62,71,359
4558609924	1,01,36,636	55,58,483
5553957443	1,10,83,959	64,29,422
5577150313	1,31,91,913	40,99,043
6117666160	95,36,468	37,71,306
6775888955	25,63,131	4,52,772
6962181067	1,30,61,598	76,38,336
7007744171	97,33,240	24,40,170

Designed By Aayushi Gupta

Box Plot by WeekDay



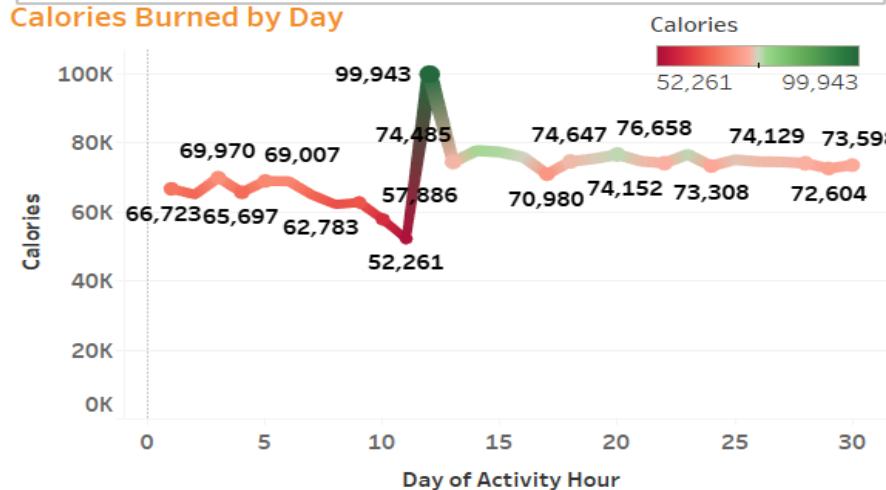
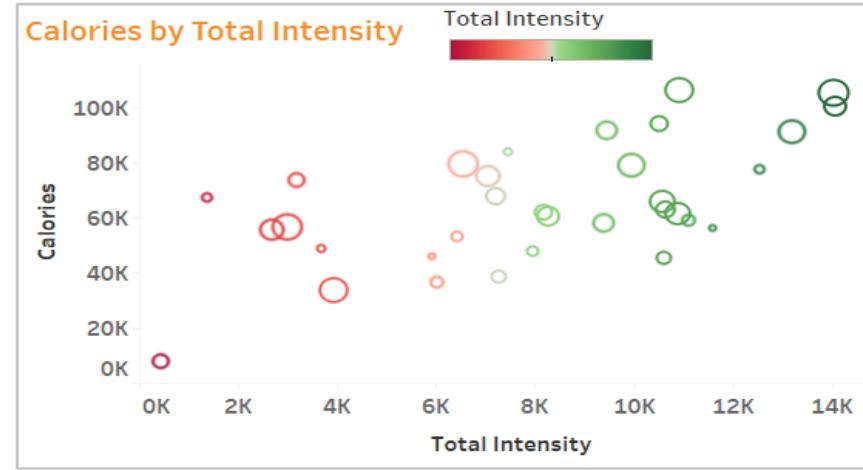
Scatter Plot of Heart Rate



HOURLY ACTIVITY DASHBOARD

LINK

HOURLY ACTIVITY DASHBOARD

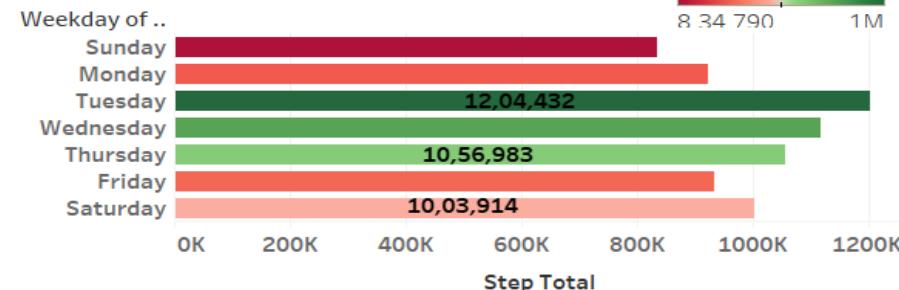


ID
(All)

Day of Activity Hour
(All)

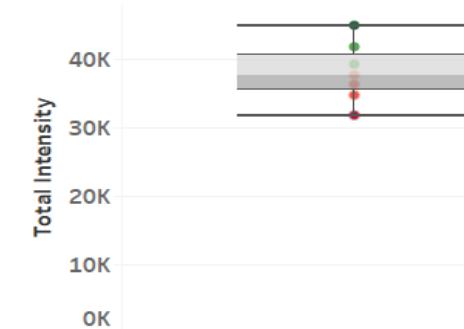
Weekday of Activity ..
(All)

Total Steps by WeekDay

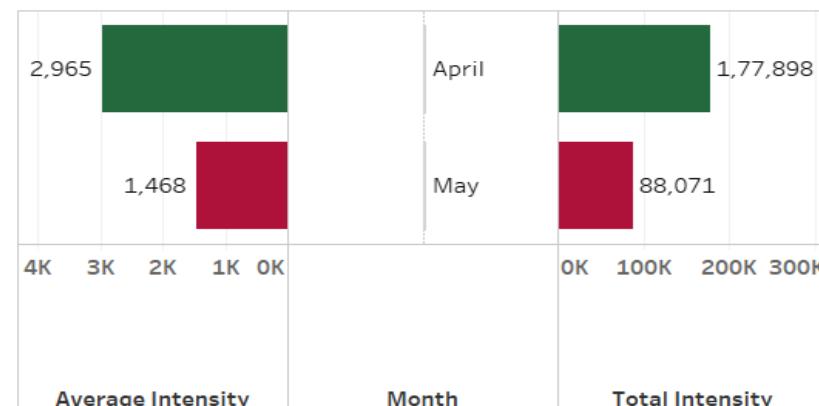


Designed By Aayushi Gupta

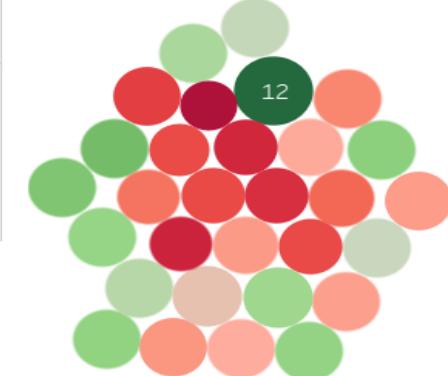
Total Intensity Per WeekDay



Avg Intensity Vs Total Intensity



Calories Burned by Total Steps



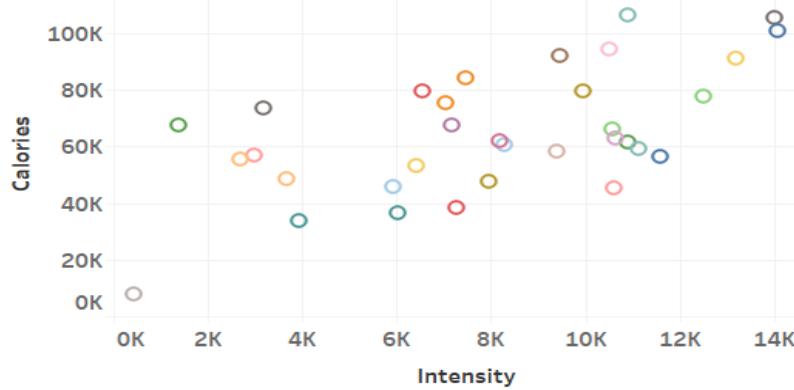
Average Intensity
1,468 2,965

MINUTE ACTIVITY DASHBOARD

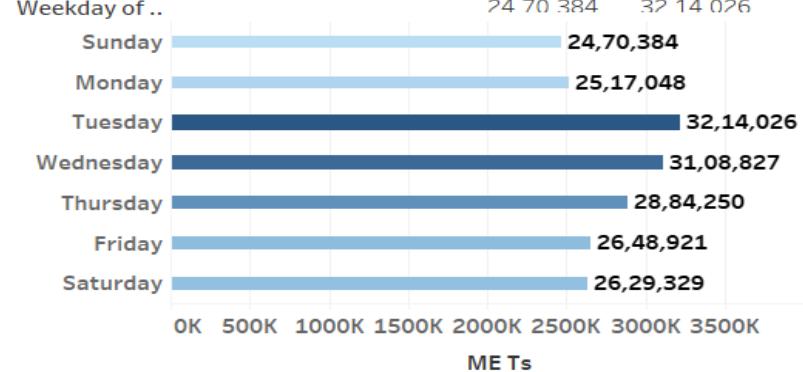
[LINK](#)

MINUTE ACTIVITY DASHBOARD

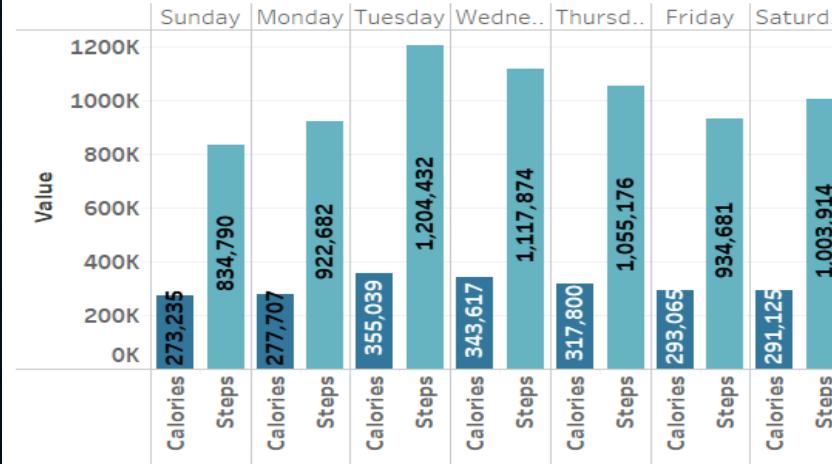
Calories Burned by Intensity



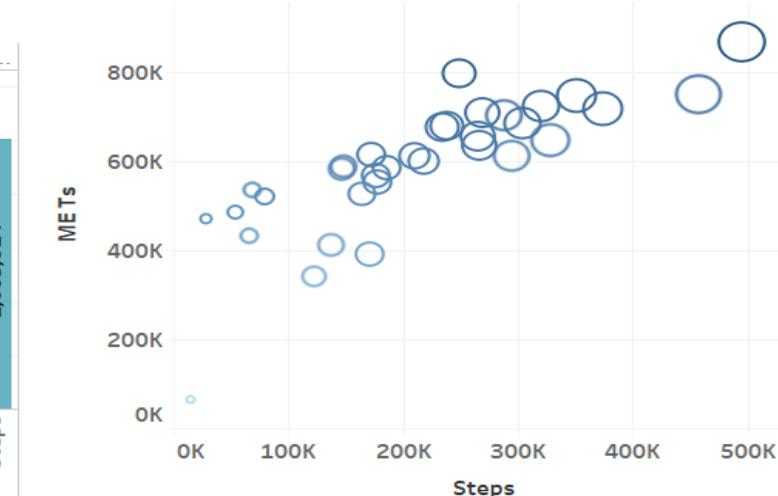
ME Ts By WeekDay



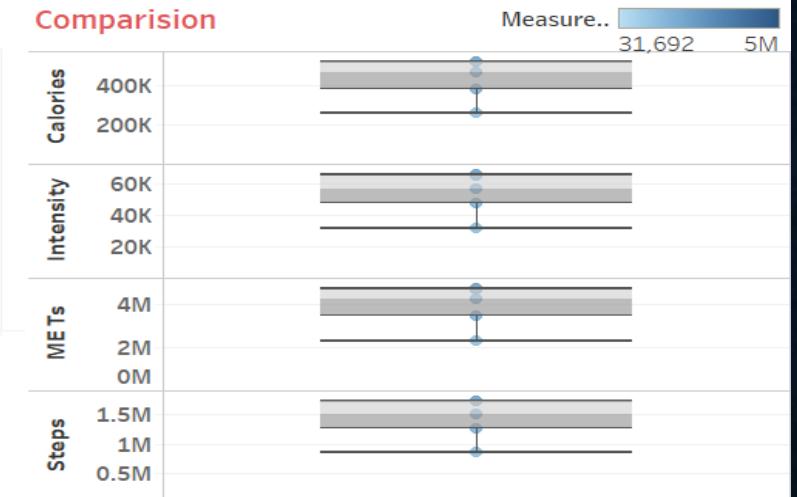
Calories Vs Steps



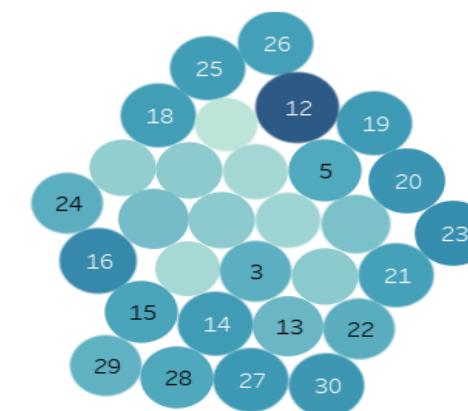
ME Ts by Steps



Comparision



Steps Taking by Day



CONCLUSION

- The creation of a Tableau dashboard for the Fitbit Consumer Behavior Analysis project was a crucial step in transforming raw data into actionable insights. This dashboard serves as a dynamic and interactive tool that allows stakeholders to easily explore key trends and patterns in Fitbit users' activity, sleep, and heart rate data.
- Through the dashboard, we were able to visualize complex data in a clear and intuitive manner, enabling Health Trackers Inc. to quickly identify important consumer behavior trends. The visualizations, including time series charts, distribution plots, and comparative analyses, provided a deeper understanding of how users engage with Fitbit devices across various demographics and activity levels.
- Moreover, the dashboard's user-friendly design facilitates decision-making by allowing users to filter data, drill down into specific segments, and observe trends over time. This level of interactivity not only enhances the analytical capabilities of the team but also supports the development of targeted marketing strategies and product offerings.
- In summary, the Tableau dashboard was instrumental in synthesizing vast amounts of Fitbit data into a coherent narrative, making it easier to draw meaningful conclusions and inform strategic decisions. The insights gained from this dashboard will guide Health Trackers Inc. in tailoring its approach to better meet the needs of its customers, ultimately driving growth and customer satisfaction.