

Fitness Summary Reporting

The aims of this project is to create the summary reports, using SQL queries on the "fitness_data.master_data" table accessible in the BigQuary.

In this project some dashboards designed using Tableau to visualize the user's workouts reports

Summary Reports – All users

For the best measure of calories burned, the ELEMNT GPS devices series (including the ELEMNT, BOLT, ROAM, and RIVAL) and Wahoo Fitness app default to using calculations based on power output when a trainer or power meter are connected (if no direct power source is connected, heart rate will be used to calculate calories as described further below). Calories from power are calculated based on the following formula:

- **Calorie rate = (4.184kJ) * 0.239GMR**

In the calculation above, Kilo Joules (kJ) are measured from the trainer or power meter and multiplied by the Gross Metabolic Rate (GMR, an average of gross metabolic efficiency), estimated at 23.9% since 1 Calorie is equal to 4.184kJ of work and the human body is about 24% efficient at burning calories.

The MAX calories – By Month

```
SELECT DISTINCT  EXTRACT(MONTH from date_AEST) AS month, userId, max
(calories) as max_calories
FROM `sit-23t1-fit-data-pipe-ee8896e.fitness_data.master_data`
WHERE calories IN

        (SELECT max(calories) as max_calories
        FROM `sit-23t1-fit-data-pipe-
ee8896e.fitness_data.master_data`
        WHERE date_AEST BETWEEN '2021-01-01' AND '2022-01-
01'

        GROUP BY EXTRACT(MONTH from date_AEST)
        )

GROUP BY userID, month
ORDER BY month
```

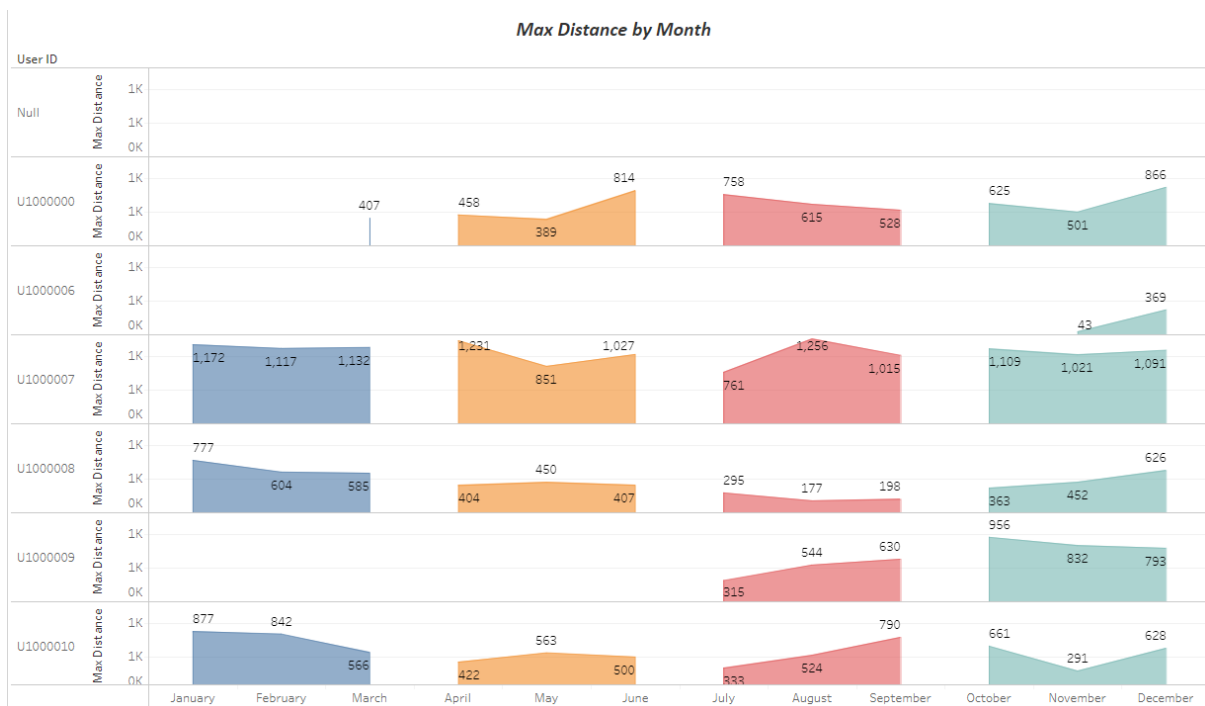
The MAX Distance – By Month

```

SELECT f.date_AEST, f.userID, max(f.distance) as max_distance
FROM `sit-23t1-fit-data-pipe-ee8896e.fitness_data.master_data`
inner join

    (SELECT s.userID, max(s.distance) as max_distance
     FROM `sit-23t1-fit-data-pipe-ee8896e.fitness_data.master_data`
     WHERE date_AEST BETWEEN '2021-01-01' AND '2022-01-01'
     GROUP BY EXTRACT(MONTH from s.date_AEST), s.userID
    )
ON f.userID = s.userID and
GROUP BY f.userID, date_AEST

```



Total Calories and Distance for all users by each date – 2021

```

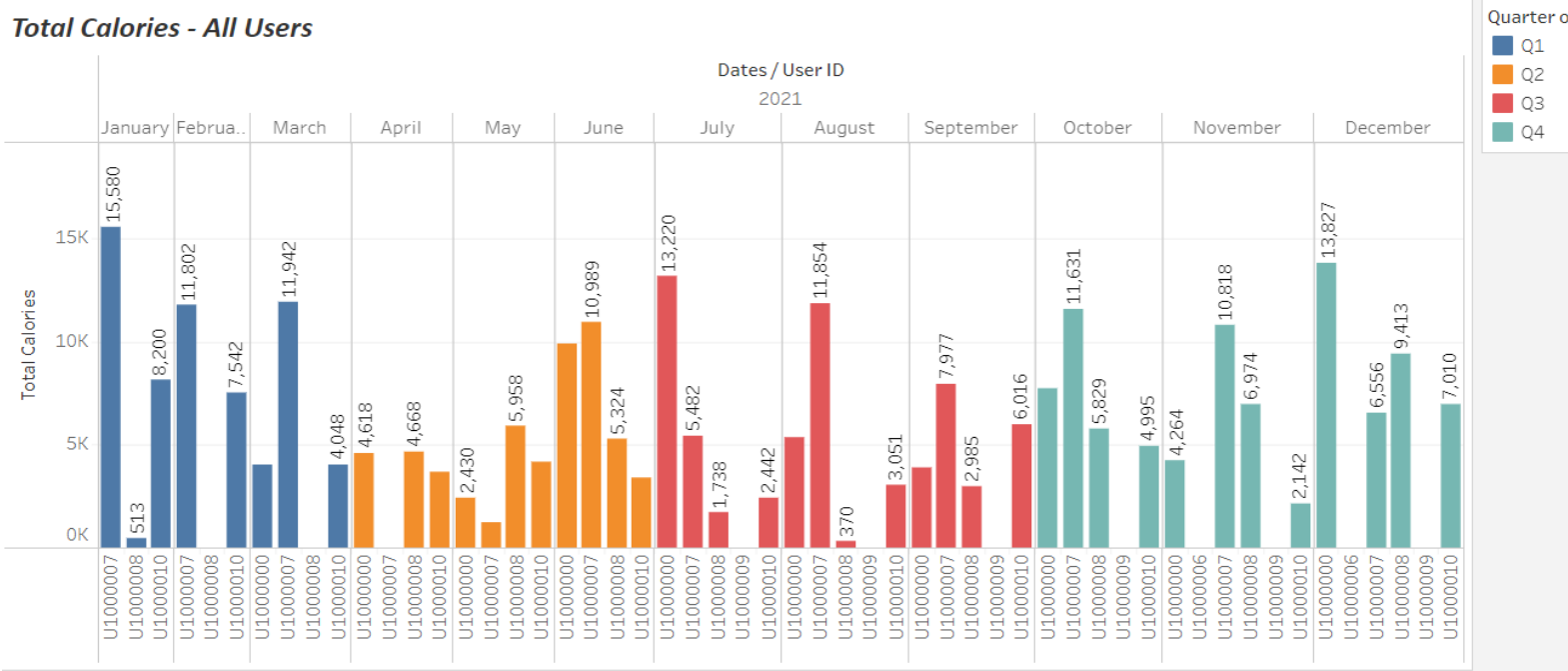
SELECT userID, date_AEST AS dates, Round(SUM(calories)/4.18) as total_calories,
       Round(SUM(distance)/1000)AS total_distance
FROM `sit-23t1-fit-data-pipe-ee8896e.fitness_data.master_data`
WHERE (date_AEST BETWEEN '2021-01-01' AND 2021-12-31')

GROUP BY date_AEST, userID
ORDER BY date_AEST

```

Row	userID	dates	total_calories	total_distance
1	U1000007	2021-01-01	3293.0	66.0
2	U1000007	2021-01-02	3791.0	70.0
3	U1000010	2021-01-02	101.0	5.0
4	U1000007	2021-01-03	122.0	8.0
5	U1000007	2021-01-05	749.0	16.0
6	U1000010	2021-01-07	1308.0	54.0
7	U1000010	2021-01-08	77.0	4.0
8	U1000007	2021-01-08	1205.0	28.0
9	U1000008	2021-01-08	null	3.0
10	U1000010	2021-01-09	568.0	22.0
11	U1000007	2021-01-09	null	106.0
12	U1000008	2021-01-09	233.0	31.0
13	U1000008	2021-01-10	null	11.0
14	U1000007	2021-01-10	1291.0	49.0

Total Calories - All Users



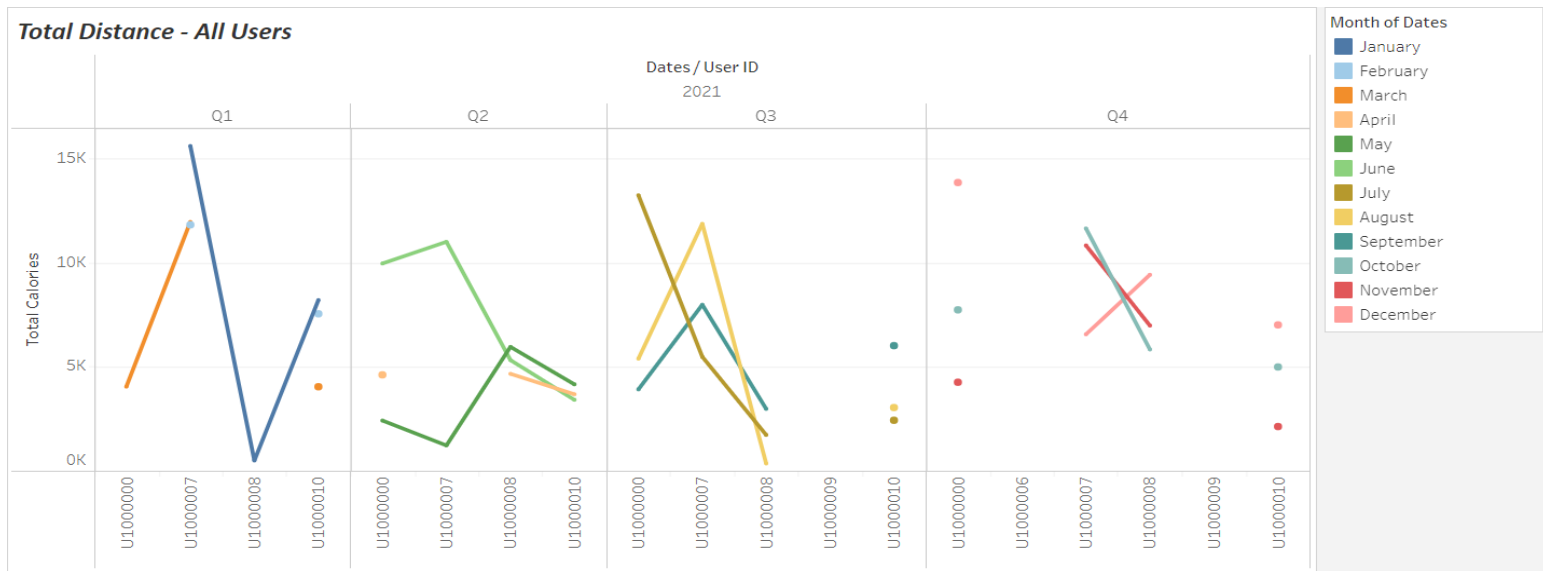
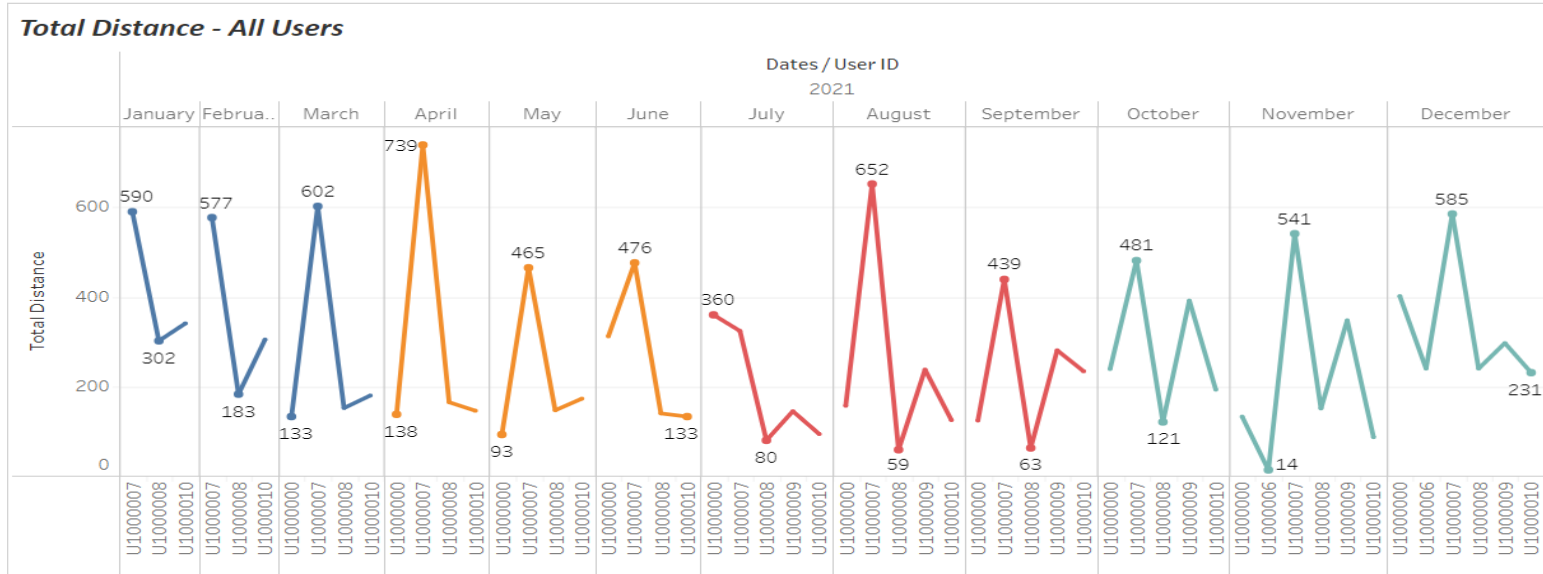
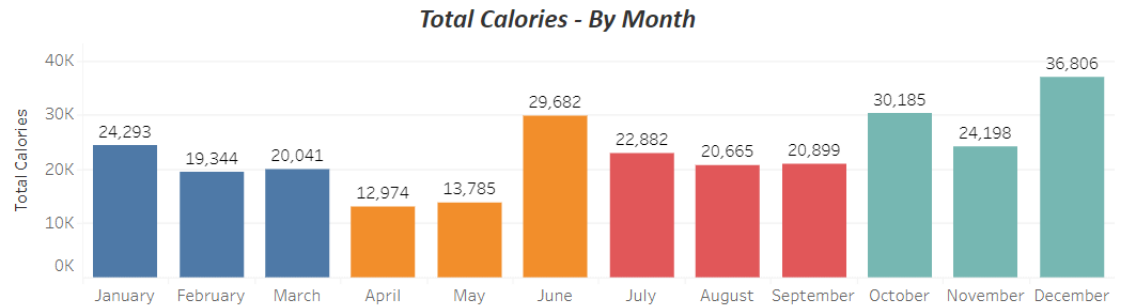
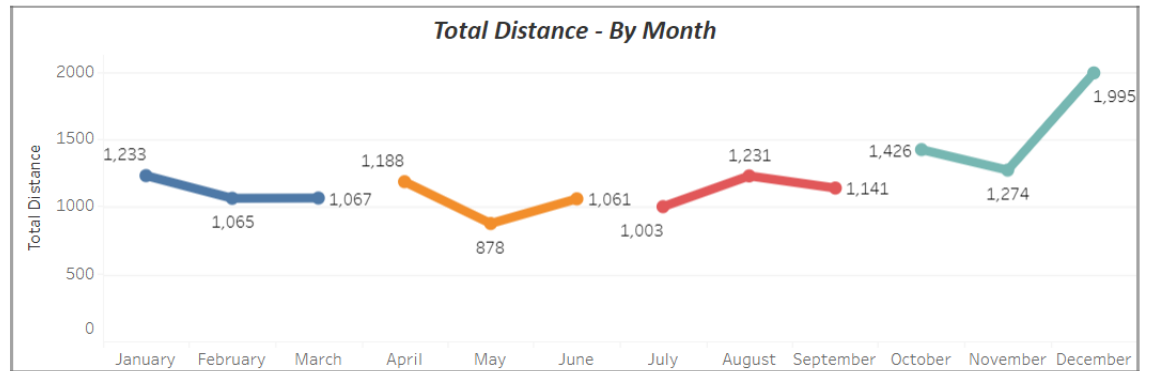


Tableau Dashboard - Total Report by Month (All Users)

Tracking Summary Report 2021 - All Users

Month of Dates	Total Calories	Total Distance
January	24,293	1,233
February	19,344	1,065
March	20,041	1,067
April	12,974	1,188
May	13,785	878
June	29,682	1,061
July	22,882	1,003
August	20,665	1,231
September	20,899	1,141
October	30,185	1,426
November	24,198	1,274
December	36,806	1,995



- Average, MAX and MIN distance and calories for all riders – By Month

```

SELECT
    EXTRACT(MONTH from date_AEST) AS month,
    round(AVG(calories)) as avg_calories,
    Round(AVG(distance))AS agv_distance,
    round(MAX(calories)) as max_calories,
    Round(MAX(distance))AS max_distance,
    round(MIN(calories)) as min_calories,
    Round(MIN(distance))AS min_distance,
FROM `sit-23t1-fit-data-pipe-ee8896e.fitness_data.master_data`

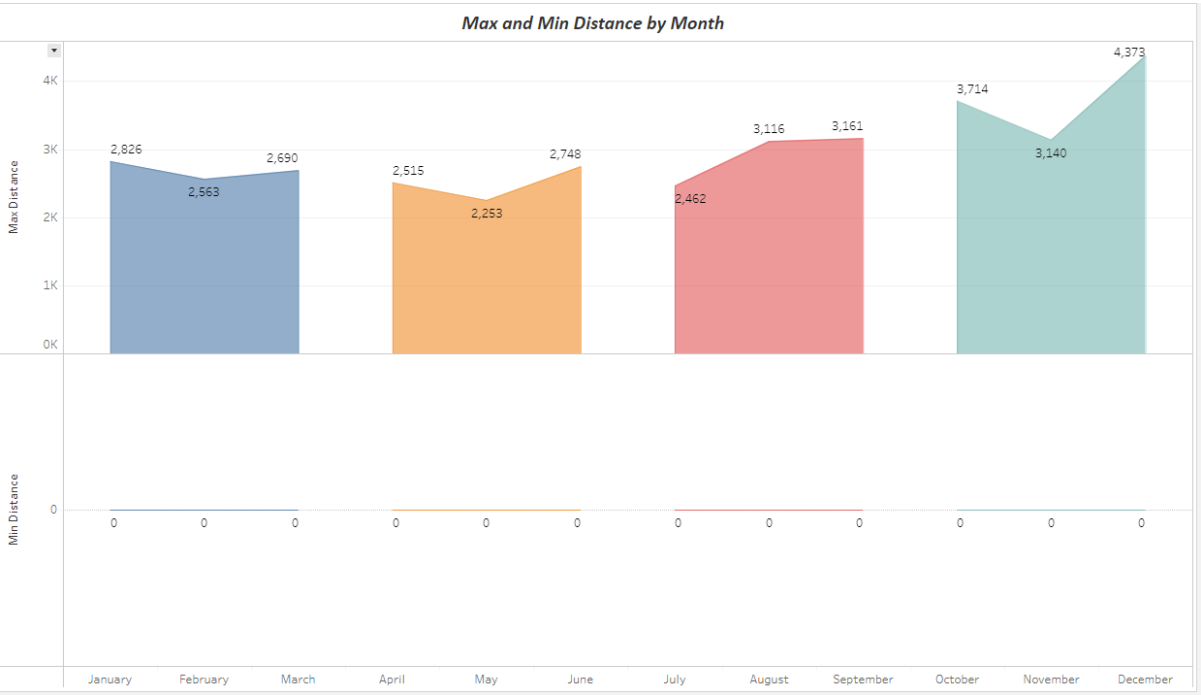
WHERE date_AEST BETWEEN '2021-01-01' AND '2021-12-30'

GROUP BY month
ORDER BY month;

```

Monthly Calories and Distance Report - All Users
(Average, MAX and MIN)

Month of d..	AVG Calories	AVG Distance	Max Calories	Max Distance	Min Calories	Min Distance
January	8,563	597	42,613	2,826	0	0
February	7,682	535	36,740	2,563	0	0
March	7,880	562	39,198	2,690	0	0
April	5,527	516	26,110	2,515	0	0
May	7,039	468	33,424	2,253	0	0
June	12,655	575	58,925	2,748	0	0
July	8,427	518	39,149	2,462	0	0
August	8,867	657	41,919	3,116	1	0
September	10,285	673	48,721	3,161	4	0
October	12,836	799	58,991	3,714	5	0
November	10,449	673	49,094	3,140	87	0
December	13,909	936	65,280	4,373	44	0



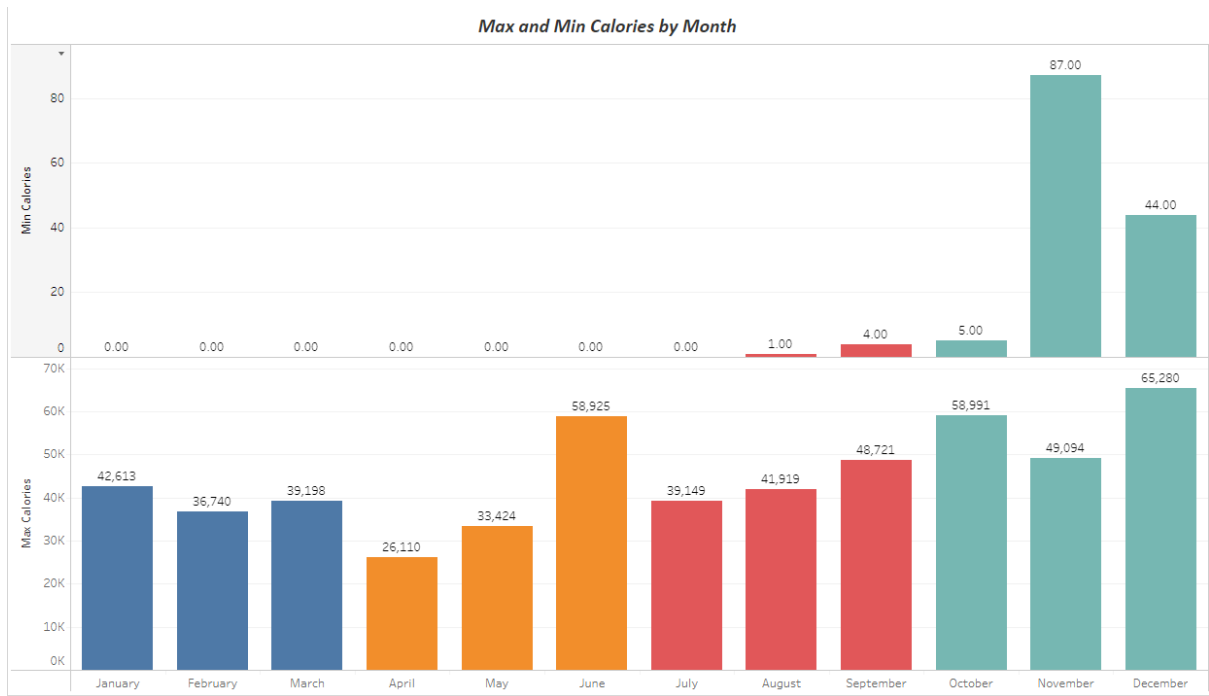
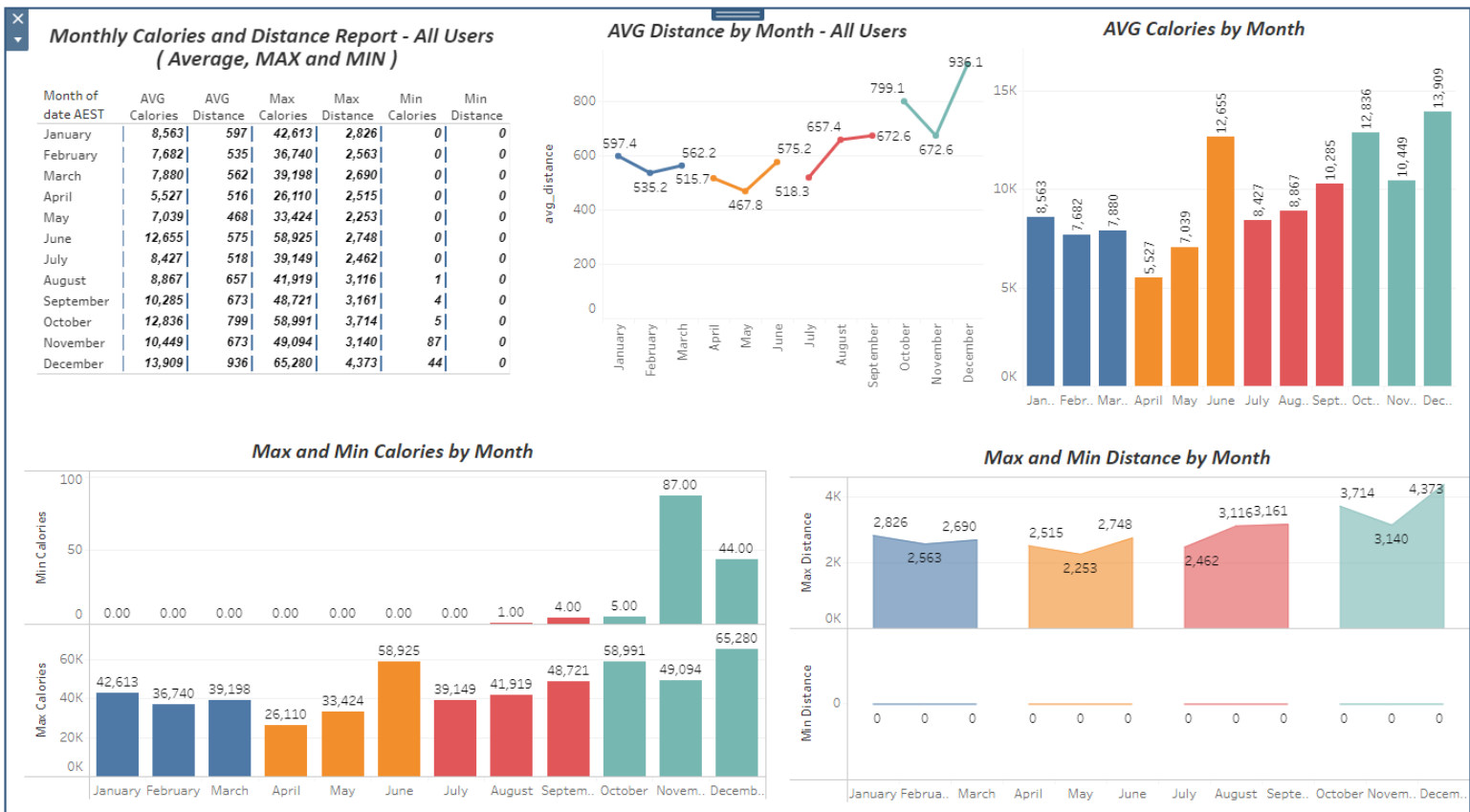


Tableau Dashboard - Monthly Calories and Distance Report

All Users (Average, MAX and MIN)



Summary Cycling Tracking 2021

Monthly Totals for each user:

The below query would calculate the Monthly total distance in KM, total calories and the total hours, for each users in 2021,

Calculation For User U1000000

```
SELECT EXTRACT(MONTH from date_AEST) AS month,  
       ROUND(SUM(calories)/4.18) AS total_calories,  
       Round(SUM(distance)/1000) AS total_distance,  
       ROUND(count(date_AEST)/4663) AS total_hour  
FROM `sit-23t1-fit-data-pipe-ee8896e.fitness_data.master_data`  
WHERE userID = "U1000000"  
       and date_AEST BETWEEN 2021-12-31' AND '2022-01-01'  
       and date_AEST  
GROUP BY month  
ORDER BY month;
```

month	total_calories	total_distance	total_hour
3	4050.0	136.0	13.0
4	4619.0	140.0	15.0
5	2429.0	92.0	14.0
6	9950.0	313.0	23.0
7	13220.0	362.0	23.0
8	5389.0	157.0	18.0
9	3920.0	124.0	15.0
10	7730.0	241.0	16.0
11	4264.0	133.0	14.0
12	13828.0	402.0	26.0

Total Calories - By Day

Day of Dates	Dates									
	March	April	May	June	July	August	Septem..	October	Novem..	Decemb..
1		755	179	55	1,195	122	284			214
2			33	461	293	540	268		651	
3		269		84	417			1,098		
4		114		159			276			69
5				294			288		67	
6		292		219	313			113		
7			795		29		308		270	
8					29	633	93	2,172		
9					530	161			288	
10	818				461		1,095		434	
11				130	2,488					631
12	28	146			234		172	99		
13				1,962		553	114	186		140
14	910		1	170		154	200			
15	10			327	5,461	182	27			
16	351	118	297			190				678
17		1,407		788						1,976
18	107					184	73			
19	490		28	984		165		359		
20	9		48	2,308					358	
21			351		950	554			27	593
22		2	19	299		773	60	320	159	581
23					215		300		284	
24		1,335					179	1,126	888	410
25								179	563	
26	833	16			570	125		72		820
27		27	320	830	35	342	184			3,106
28		26				571		481	131	1,769
29		46	202	355						1,694
30	14	65		524		67			144	1,146
31	481		157			74		1,525		

Calculation For User U1000007

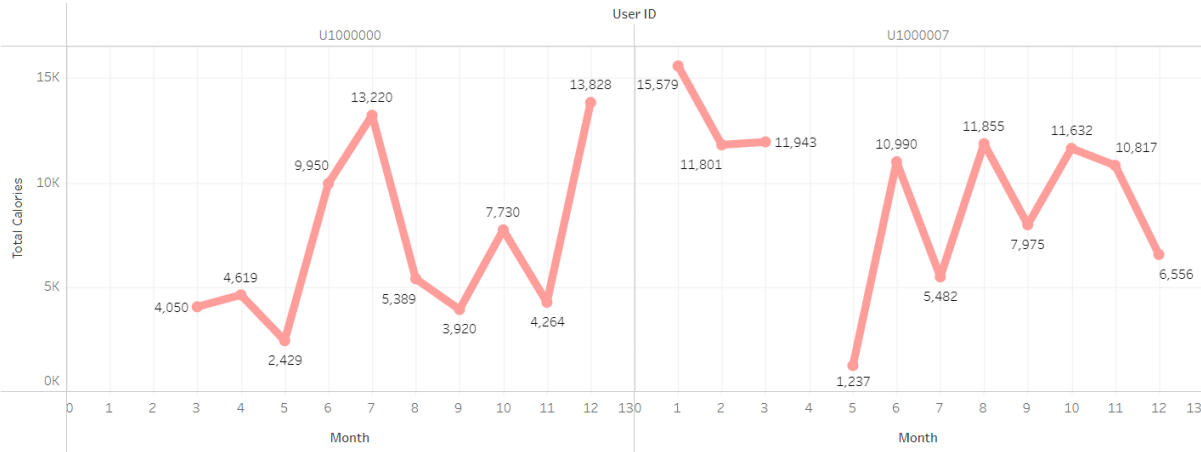
```

SELECT EXTRACT(MONTH from date_AEST) AS month,
       ROUND(SUM(calories)/4.18) AS total_calories,
       Round(SUM(distance)/1000) AS total_distance,
       ROUND(count(date_AEST)/4663) AS total_hour
FROM `sit-23t1-fit-data-pipe-ee8896e.fitness_data.master_data`
WHERE userID = "U1000007"
      and date_AEST BETWEEN 2021-12-31' AND '2022-01-01'
      and date_AEST
GROUP BY month
ORDER BY month;

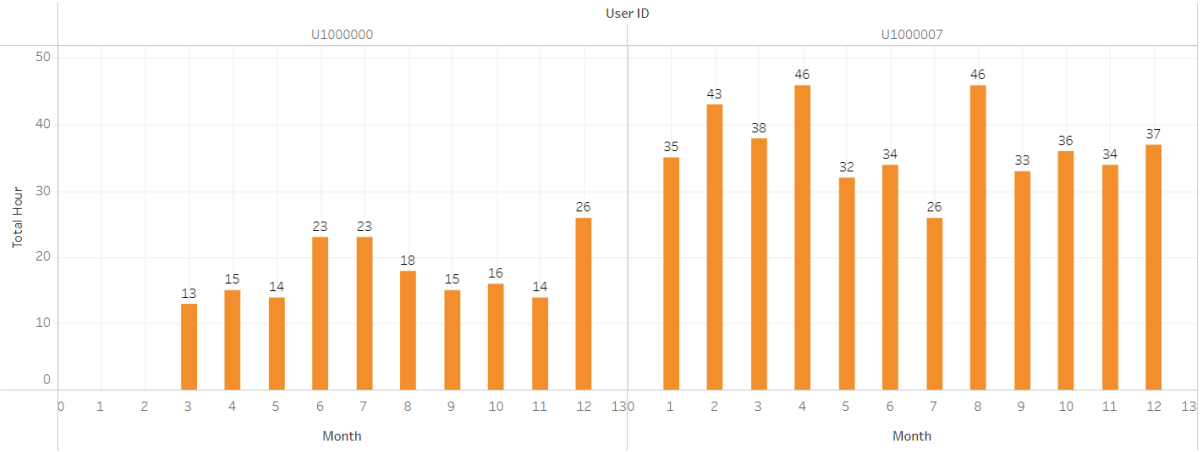
```

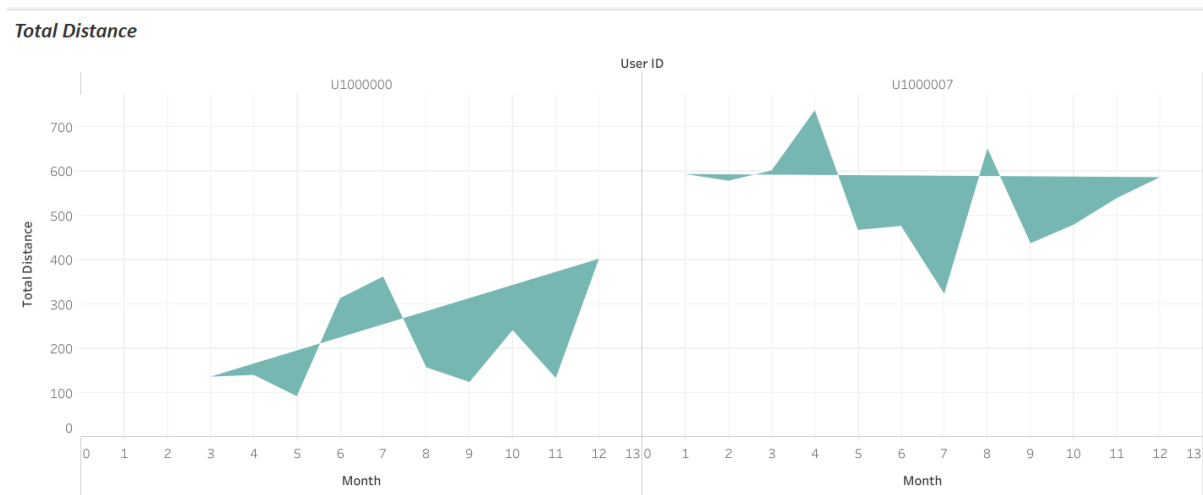
month	total_calories	total_distance	total_hour
1	15579.0	593.0	35.0
2	11801.0	578.0	43.0
3	11943.0	601.0	38.0
4	null	737.0	46.0
5	1237.0	467.0	32.0
6	10990.0	476.0	34.0
7	5482.0	323.0	26.0
8	11855.0	651.0	46.0
9	7975.0	437.0	33.0
10	11632.0	479.0	36.0
11	10817.0	539.0	34.0
12	6556.0	586.0	37.0

Total Calories



Total Hours





Daily Total Report for each user:

The below query would calculate the total distance in KM and total calories for each day of the year 2021:

For user U1000000

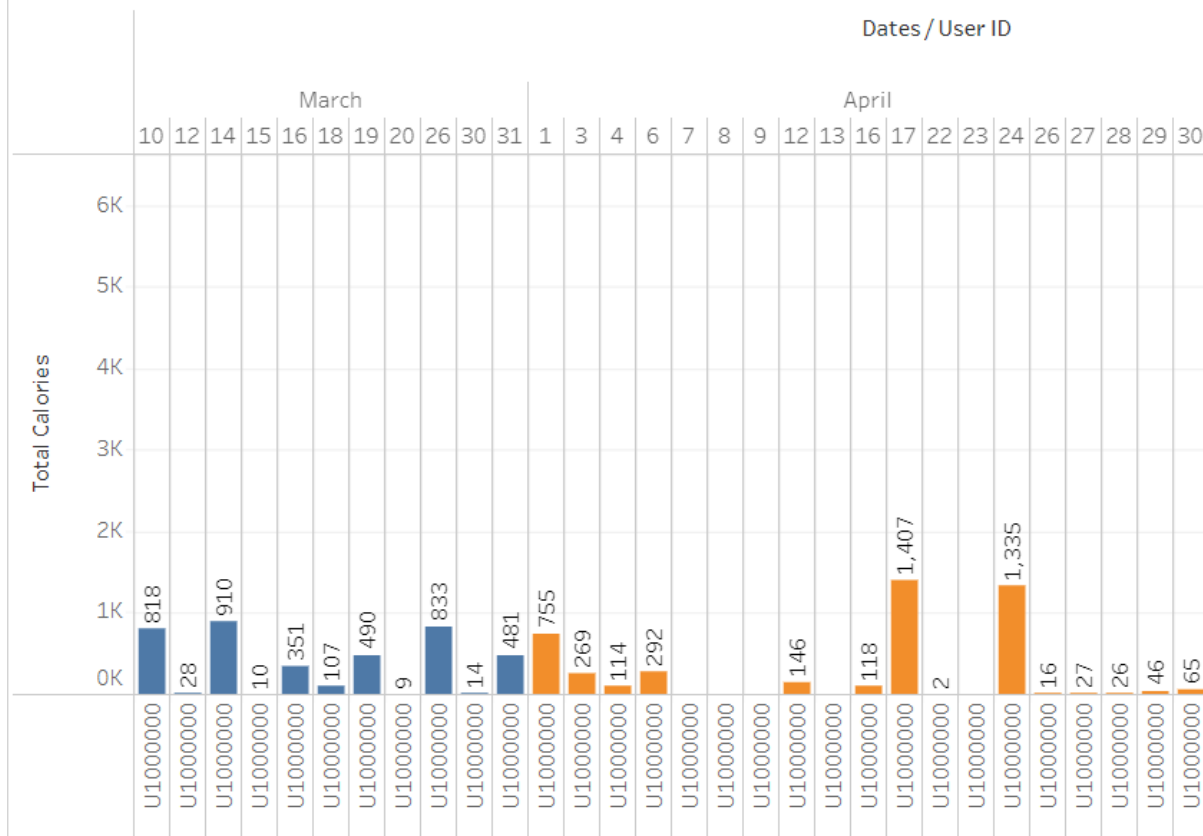
```
SELECT userID,
       date_AEST AS dates,
       ROUND(SUM(calories/4.18)) AS total_calories,
       Round(SUM(distance/1000)) AS total_distance
FROM `sit-23t1-fit-data-pipe-ee8896e.fitness_data.master_data`
WHERE (date_AEST BETWEEN '2021-01-01' AND 2021-12-31)
      AND userID = 'U1000000'
GROUP BY date_AEST, userID
ORDER BY date_AEST
```

Row	userID	dates	total_calories	total_distance
1	U1000000	2021-03-10	818.0	26.0
2	U1000000	2021-03-12	28.0	1.0
3	U1000000	2021-03-14	910.0	31.0
4	U1000000	2021-03-15	10.0	0.0
5	U1000000	2021-03-16	351.0	10.0
6	U1000000	2021-03-18	107.0	3.0
7	U1000000	2021-03-19	490.0	19.0
8	U1000000	2021-03-20	9.0	0.0
9	U1000000	2021-03-26	833.0	26.0
10	U1000000	2021-03-30	14.0	0.0
11	U1000000	2021-03-31	481.0	17.0
12	U1000000	2021-04-01	755.0	25.0
13	U1000000	2021-04-03	269.0	7.0
14	U1000000	2021-04-04	114.0	3.0
15	U1000000	2021-04-06	292.0	9.0

Total Calories - By Day

Day of Dates	Dates									
	March	April	May	June	July	August	Septem..	October	Novem..	Decemb..
1		755	179	55	1,195	122	284			214
2			33	461	293	540	268		651	
3		269		84	417			1,098		
4		114		159			276			69
5				294			288		67	
6		292		219	313			113		
7			795		29		308		270	
8					29	633	93	2,172		
9					530	161			288	
10	818				461		1,095		434	
11				130	2,488					631
12	28	146			234		172	99		
13				1,962		553	114	186		140
14	910		1	170		154	200			
15	10			327	5,461	182	27			
16	351	118	297			190				678
17		1,407		788						1,976
18	107					184	73			
19	490		28	984		165		359		
20	9		48	2,308					358	
21			351		950	554			27	593
22		2	19	299		773	60	320	159	581
23					215		300		284	
24		1,335					179	1,126	888	410
25								179	563	
26	833	16			570	125		72		820
27		27	320	830	35	342	184			3,106
28		26				571		481	131	1,769
29		46	202	355						1,694
30	14	65		524		67			144	1,146
31	481		157			74		1,525		

Total Calories By Day

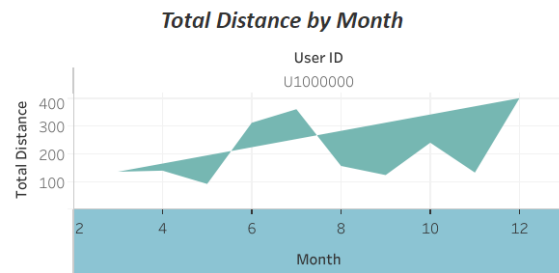
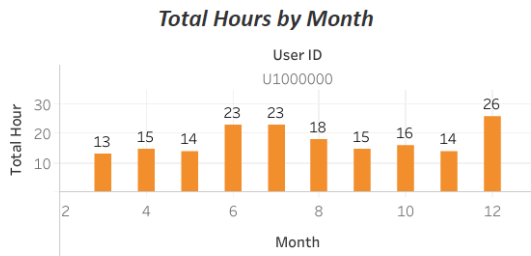
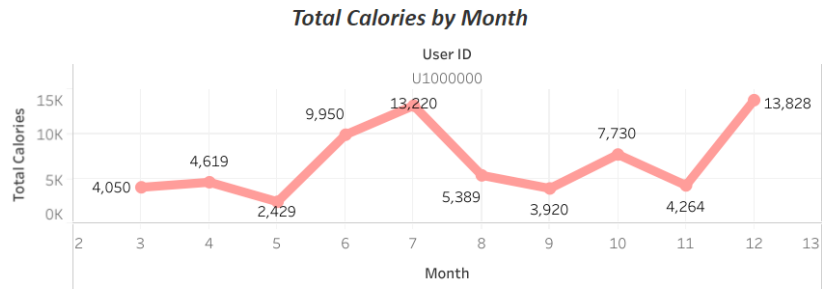


Created the following Summary Tracking Dashboards using Tableau:

Monthly Total – for User1 and User7

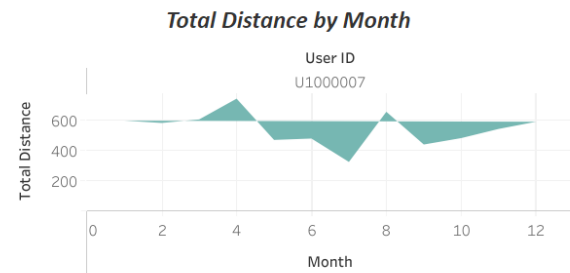
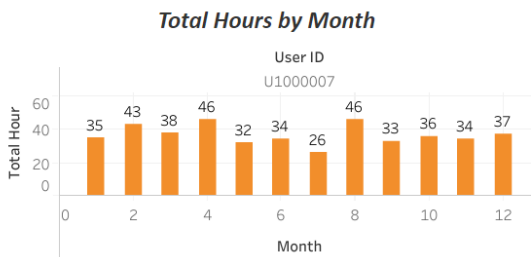
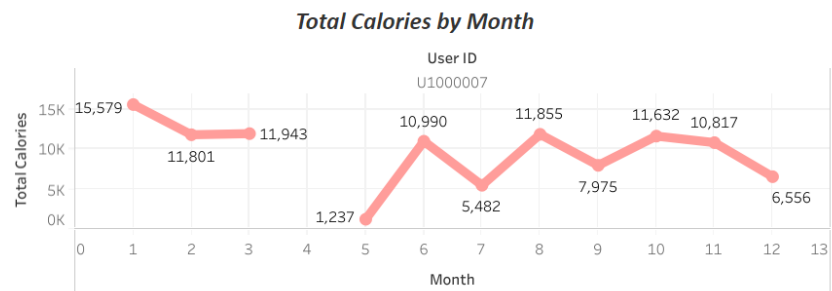
Summary Tracking 2021 - User U000000

Month of Dates	Total Calories	Total Distance
March	4,051	133
April	4,618	138
May	2,430	93
June	9,949	312
July	13,220	360
August	5,390	157
September	3,921	124
October	7,730	239
November	4,264	133
December	13,827	402



Tracking Summary Report 2021 - User U000007

Month of D..	Total C..	Total Di..
January	15,580	590
February	11,802	577
March	11,942	602
April	739	
May	1,237	465
June	10,989	476
July	5,482	324
August	11,854	652
September	7,977	439
October	11,631	481
November	10,818	541
December	6,556	595



The below query would calculate the Monthly Average distance (KM) and calories for each user – in year 2021:

```
select userID, EXTRACT(MONTH from date_AEST) AS month, round(AVG(calories)) as avg_calories, Round(AVG(distance))AS agv_distance
FROM `sit-23t1-fit-data-pipe-ee8896e.fitness_data.master_data`
```

WHERE (date_AEST BETWEEN '2021-01-01' AND 2021-12-31) AND userID = 'U1000000'

GROUP BY month, userID
ORDER BY month;

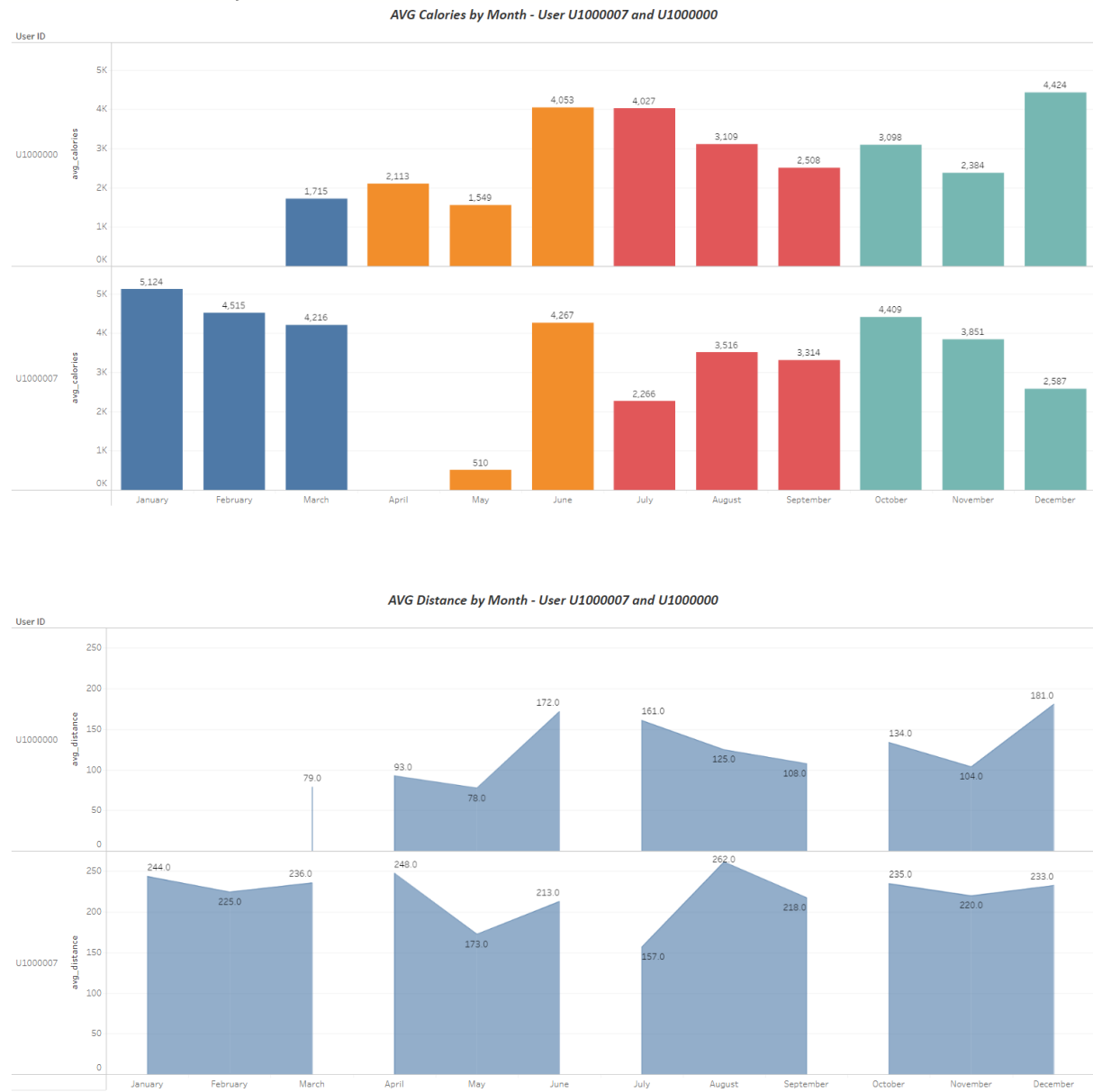


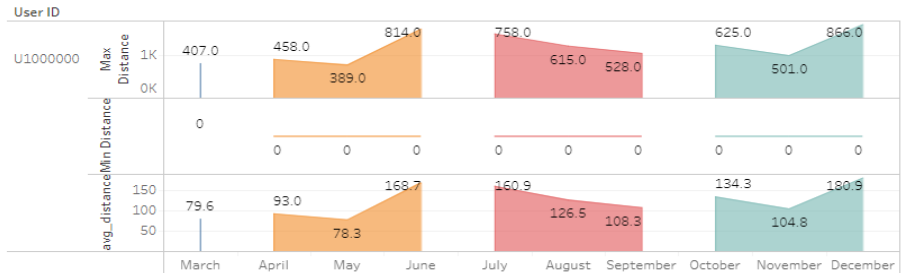
Tableau Dashboard – Monthly report
(Avg, Max, Min) – U000000

Max, Min, and Avg Monthly Report 2021 - U000000

Monthly Calories and Distance Report - U0000000
(Average, MAX and MIN)

Month of date AEST	AVG Calories	AVG Distance	Max Calories	Max Distance	Min Calories	Min Distance
March	1,715	80	8,962	407	0	0
April	2,113	93	10,235	458	0	0
May	1,549	78	7,527	389	0	0
June	4,053	169	19,276	814	0	0
July	4,027	161	18,668	758	0	0
August	3,109	127	15,411	615	1	0
September	2,508	108	12,522	528	0	0
October	3,098	134	14,147	625	0	0
November	2,384	105	11,401	501	0	0
December	4,424	181	20,751	866	0	0

Max, Min and Avg Distance Report by Month (U000000)



Monthly Caloriy Report (Max, Min and Avg) - U0000007

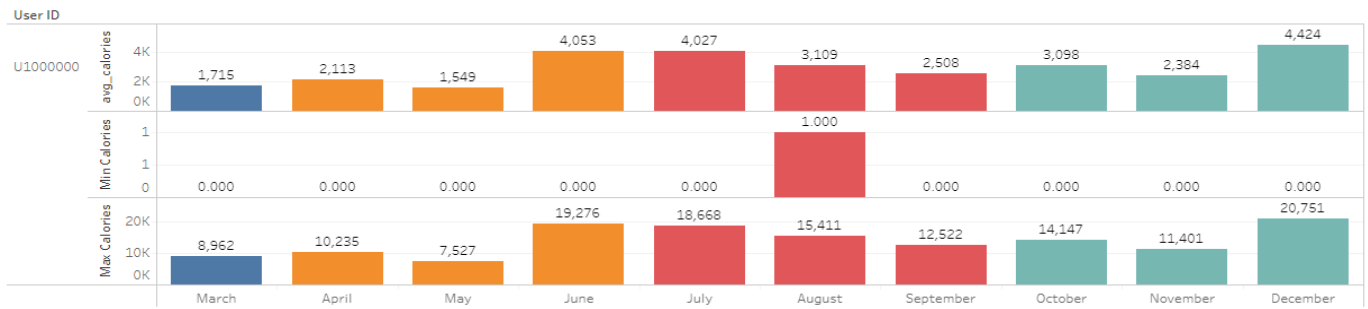


Tableau Dashboard – Monthly report

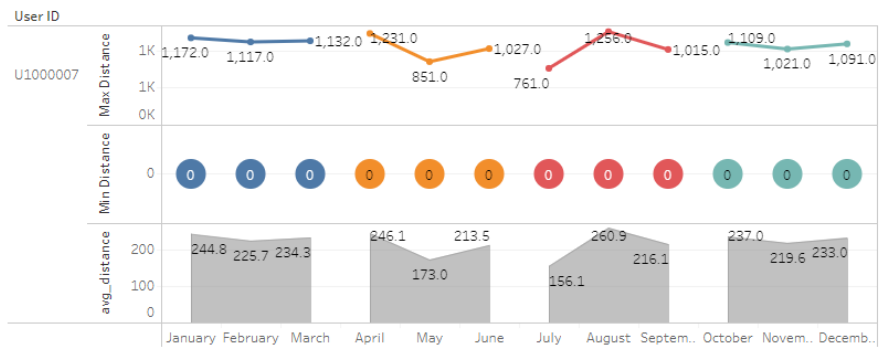
(Avg, Max, Min) – U000007

Max, Min, and Avg Monthly Report 2021 - U000007

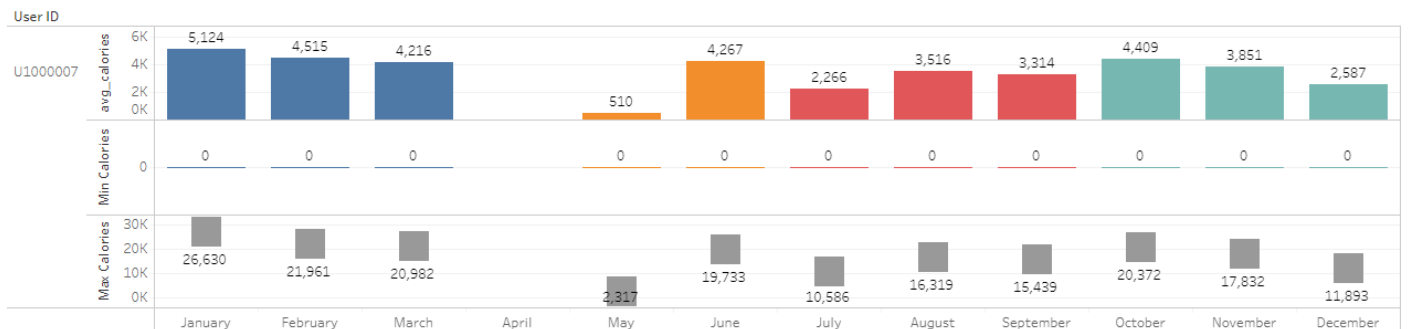
**Monthly Calories and Distance Report - U000007
(Average, MAX and MIN)**

Month of date AEST	AVG Calories	AVG Distance	Max Calories	Max Distance	Min Calories	Min Distance
January	5,124	245	26,630	1,172	0	0
February	4,515	226	21,961	1,117	0	0
March	4,216	234	20,982	1,132	0	0
April		246		1,231		0
May	510	173	2,317	851	0	0
June	4,267	213	19,733	1,027	0	0
July	2,266	156	10,586	761	0	0
August	3,516	261	16,319	1,256	0	0
September	3,314	216	15,439	1,015	0	0
October	4,409	237	20,372	1,109	0	0
November	3,851	220	17,832	1,021	0	0
December	2,587	233	11,893	1,091	0	0

Max, Min and Avg Distance Report by Month (U000007)

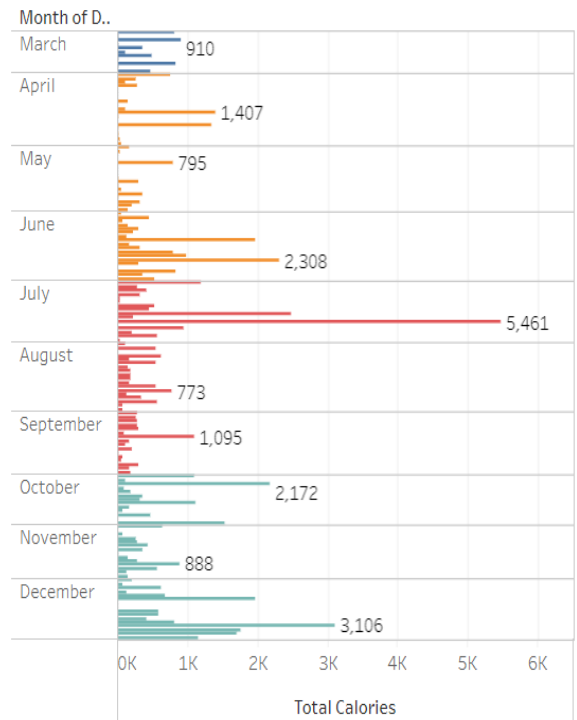


Max, Min and Avg Calories Report by Month (U000007)



Daily CalorieTracking 2021 - User U000000

Day of Dates	March	April	May	June	July	August	Septem..	October	Novem..	Decemb..
1		755	179	55	1,195	122	284			214
2			33	461	293	540	268		651	
3		269		84	417			1,098		
4		114		159			276			69
5				294			288		67	
6		292		219	313			113		
7			795		29		308		270	
8					29	633	93	2,172		
9					530	161			288	
10	818				461		1,095		434	
11				130	2,488					631
12	28	146			234		172	99		
13				1,962		553	114	186		140
14	910		1	170		154	200			
15	10			327	5,461	182	27			
16	351	118	297			190				678
17		1,407		788						1,976
18	107					184	73			
19	490		28	984		165		359		
20	9		48	2,308					358	
21			351		950	554			27	593
22		2	19	299		773	60	320	159	581
23					215		300		284	
24		1,335					179	1,126	888	410
25								179	563	
26	833	16			570	125		72		820
27		27	320	830	35	342	184			3,106
28		26				571		481	131	1,769
29		46	202	355						1,694
30	14	65		524		67			144	1,146
31	481		157			74		1,525		



Daily CalorieTracking 2021 - User U000007

Day of Dat..	January	Februa..	March	April	May	June	July	August	Septe..	October	Novem..	Decem..
1	3,293					304	273	363	232	911	1,953	203
2	3,791	393	333			266			389		220	239
3	122	724	230				1,874			1,468		
4		61							295		277	1,674
5	749					411						943
6		2,388				1,109	342			241	1,244	
7		708	799				246	1,312	298			
8	1,205		516					1,877	245	398		225
9		43	540						313	1,255	299	
10	1,291	703	0				281	383				
11		589	372			310			1,426		272	
12										430		
13		177	2,830			1,822				237	241	
14		876	2,185			935		1,361	306			302
15		384						2,514	247			210
16	94	188	406			269						233
17	76	287	242			287				468	530	
18		1,089	394						1,428			1,274
19	189					1,873		399	264	314		
20		2,420	2,929			754		242		251	1,432	
21	221	490						1,264		238	652	258
22						335		544				122
23	1,371	282				250			591	694	279	
24	25						835		1,393	996	213	873
25	844		166								228	
26						654			0	274		
27						814	289			81	1,497	
28	458						269	1,299		267	1,214	
29					519	341			225			
30	1,046				718	255	242		325	1,317	267	
31	805						831	296		1,791		

