WATCH SE 2

Swimming Analytics

MY SWIMMING ANALYTICS

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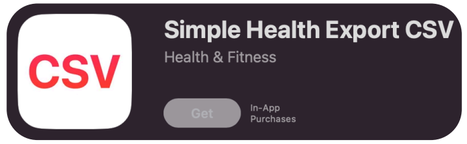

How I get Data?

The data downloaded from Apple Watch SE 2 provides me with a detailed overview of my swim sessions, including the distance covered, lengths, the duration of each lap. It's truly mind-blowing to have access to such precise information that helps me analyze and improve my swimming technique. The Apple Watch SE 2 has completely revolutionized my swimming experience, and I couldn't be more excited about it!

Various apps available on the Apple Store! I track my information using Simple Health Export CSV app. This app allows me to export my health data from my Apple devices into a CSV file, After using sheets, python, pandas, matplotlib, and seaborn. With these powerful tools and analytical skills at my disposal, I was able to dive deep into the data and extract meaningful information.

SWIM ANALYTICS

Features Specification

Start Date - Activity start time, date, month and year.
End Date - Activity end time, date, month and year.
Swimming Stroke Count - Both Left & right arm strokes count during one session.
Distance Meter - Distance cover in meters during one session.
Distance Kilometres - Distance cover in Kms during one session.
Duration Minute - Activity duration in minute during one session.
Duration Hour - Activity duration in hour during one session.
Pool Length - Length of Swimming Pool 25 meter fixed.
Energy Burned KCAL - Calories Burn during one session.
HK Average METs (kcal/hr·kg) - Average intensity over entire workout duration.

The data set focuses solely on **Freestyle Swimming technique!** This is exactly what I need to analyze and improve my own swimming abilities. The feature name specifications in the data set will be my roadmap to success. By carefully examining each column and its corresponding data, I can gain valuable insights into my swimming technique. Without a coach, this data set is like having a virtual mentor. It provides me with objective feedback and allows me to track my progress over time.

The Data set contains data from **May 2023 to March 2024.**

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Data Cleaning

Activity_type	Start_date	End_date	Duration	Duration_unit	Energy_burned	Distance_r	Swimming_strol	Pool_length	HKAverageMETs
Swimming	2023-07-04	2023-07-04	1607.17189	sec	110.633 kcal	425 m	205 count	25 m	5.0982 kcal/hr·kg
Swimming	2023-07-06	2023-07-06	1067.669814	sec	76.9475 kcal	300 m	148 count	25 m	5.31365 kcal/hr·kg
Swimming	2023-07-08	2023-07-08	1793.364546	sec	106.805 kcal	360 m	201 count	24 m	4.39921 kcal/hr·kg
Swimming	2023-07-09	2023-07-09	1786.5862	sec	132.813 kcal	504 m	282 count	24 m	5.41261 kcal/hr·kg
Swimming	2023-07-11	2023-07-11	1903.373016	sec	124.71 kcal	525 m	219 count	25 m	4.92888 kcal/hr·kg

Once in a while because of wet hands, I made a small mistake and changed the pool length to 24m instead of 25m. So there is an error in two rows with distance, So convert it into proper distance using simple math **(360/24= 15, 15*25= 375m), (504/24= 21, 21*25= 525m)** and replace it.

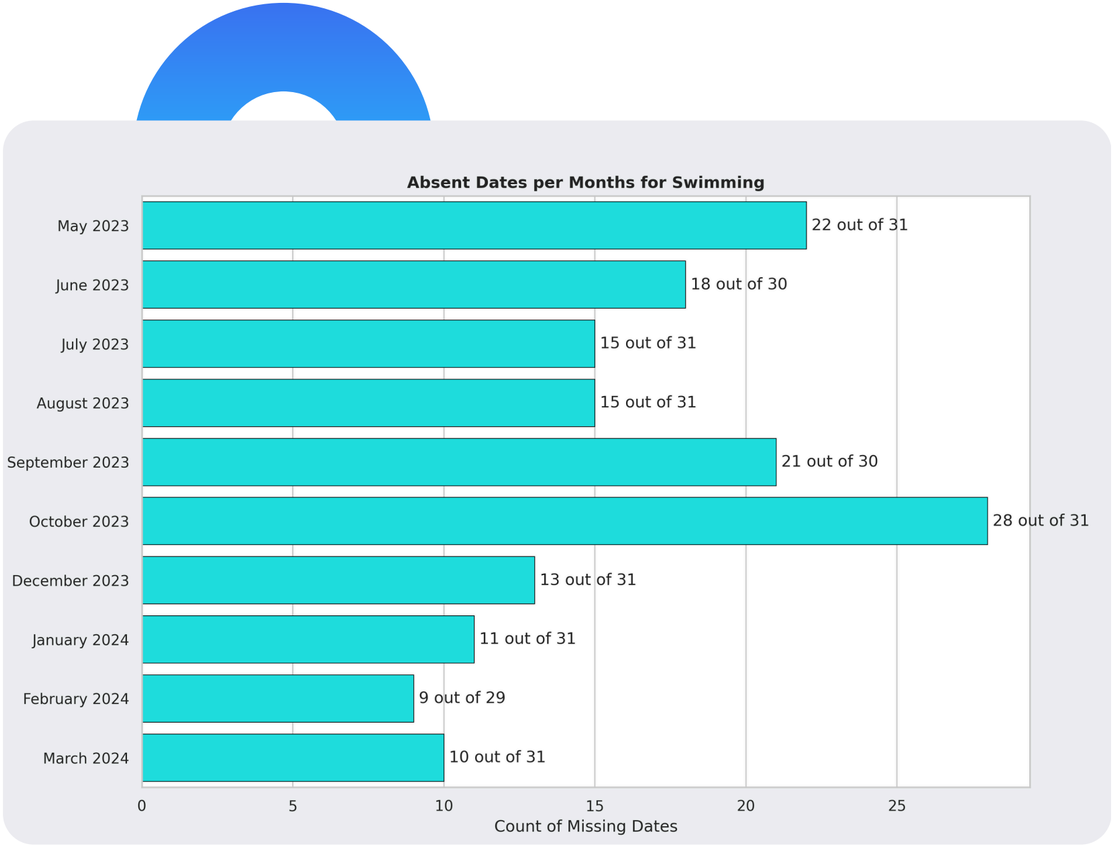
After upload my dataset on Google Colaboratory and start making some amazing changes to it using Python programming:

- **Checked null and duplicate values.**
- **Converted Date columns into a datetime object using pd.to_datetime function.**
- **Created new features such as duration in Minutes and Hours, distance in Kilometres.**
- **Converted necessary feature objects into integers values for statistical analysis.**
- **Removed unncecessary features and recall data consistency.**

Data cleaning is often seen as the easy part of data analysis, but let me tell you, it is far from that! As researchers and analysts, we hope that once we have our dataset, we can dive right into the exciting part of exploring the features and outcomes. However, reality hits hard when we realize that data cleaning requires a lot of effort and understanding.

SWIM ANALYTICS

Absent & Present Days



Month Year	Absents Days	Wednesday	Month Days	Actual Days	Acurate Absents	Acurate Presents
May 2023	22	5	31	26	17	9
June 2023	18	4	30	26	14	12
July 2023	15	4	31	27	11	16
August 2023	15	5	31	26	10	16
September 2023	21	4	30	26	17	9
October 2023	28	4	31	27	24	3
December 2023	13	4	31	27	9	18
January 2024	11	5	31	26	6	20
February 2024	9	4	29	25	5	20
March 2024	10	4	31	27	6	21

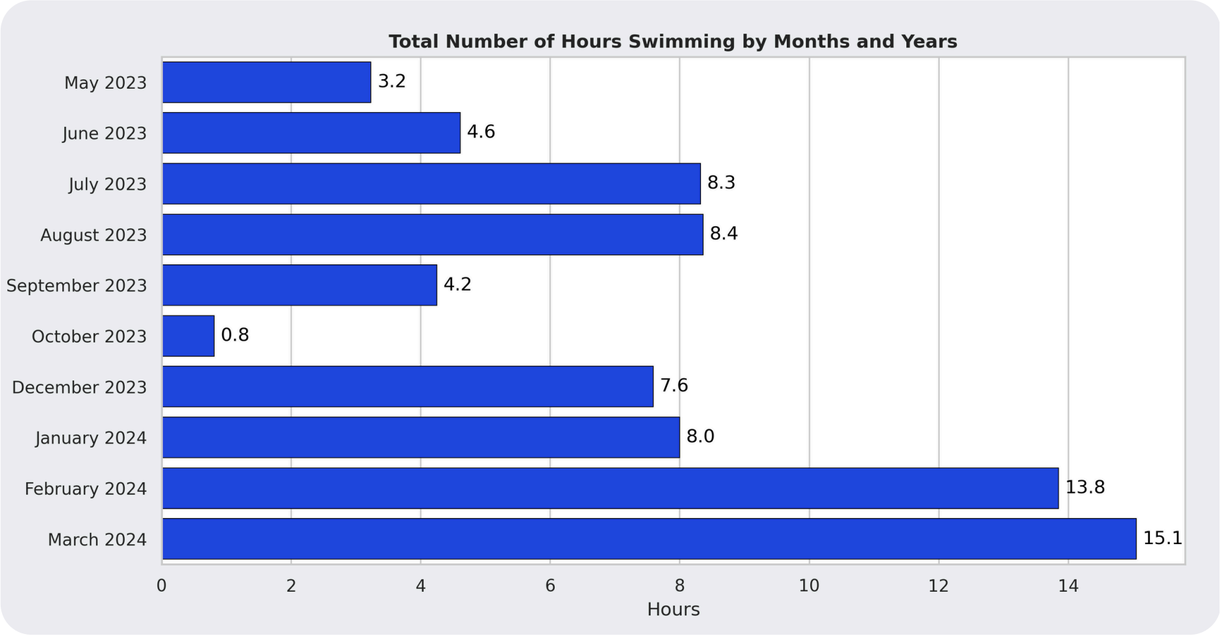
When conducting an analysis and creating infographics for swimming data, it is crucial to consider the absent and present dates for each swimming month. This information helps provide a comprehensive overview of the swimmers' attendance and allows for accurate findings.

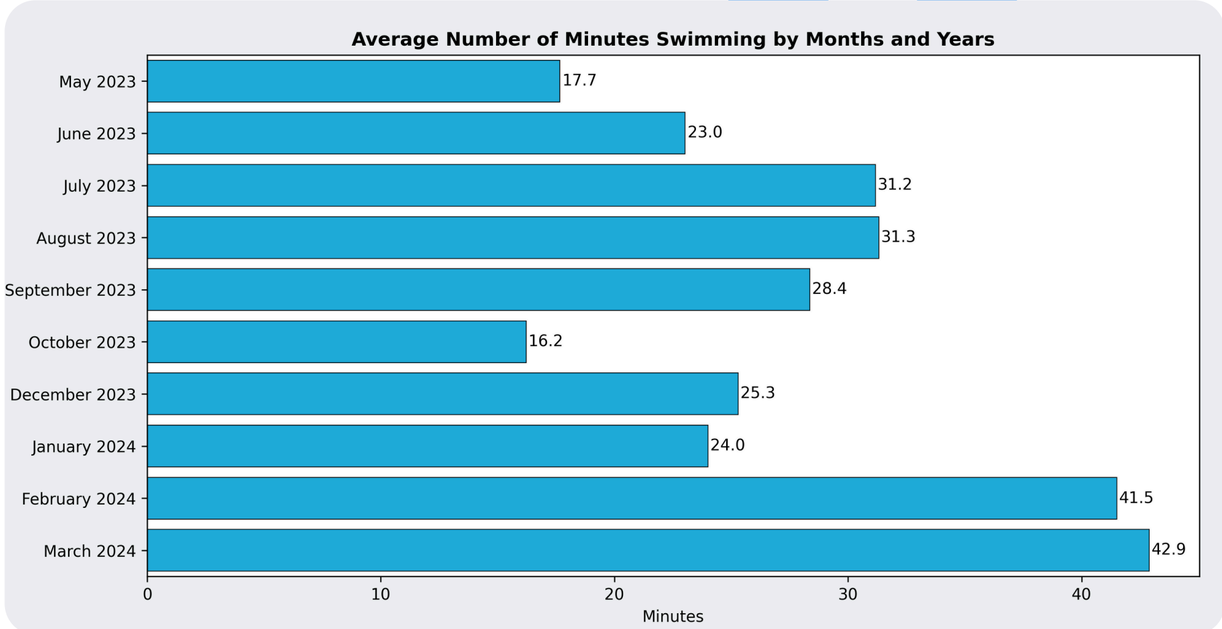
Wednesday: Because wednesdays are designated as maintenance day for the pool, resulting in no swimming activities. By discounting Wednesdays from the analysis, we ensure accurate findings and eliminate any potential bias in the data.

However, there is gap of available data for the month October & November 2023. The reason behind this anomaly will be discussed later.

SWIM ANALYTICS

Infographics

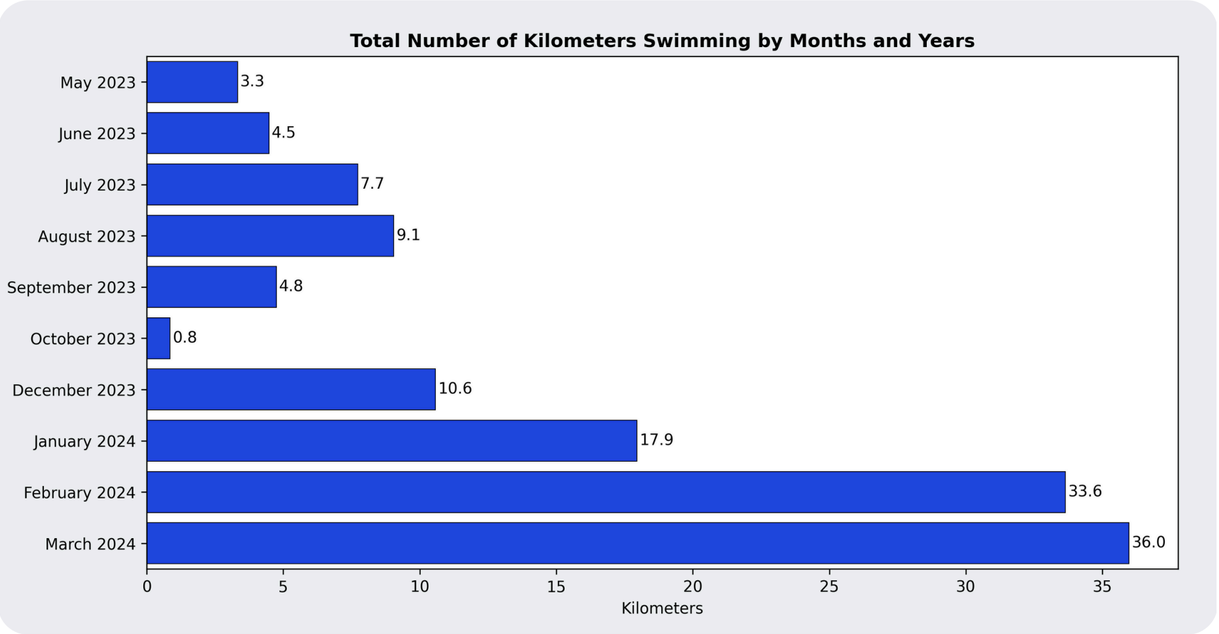


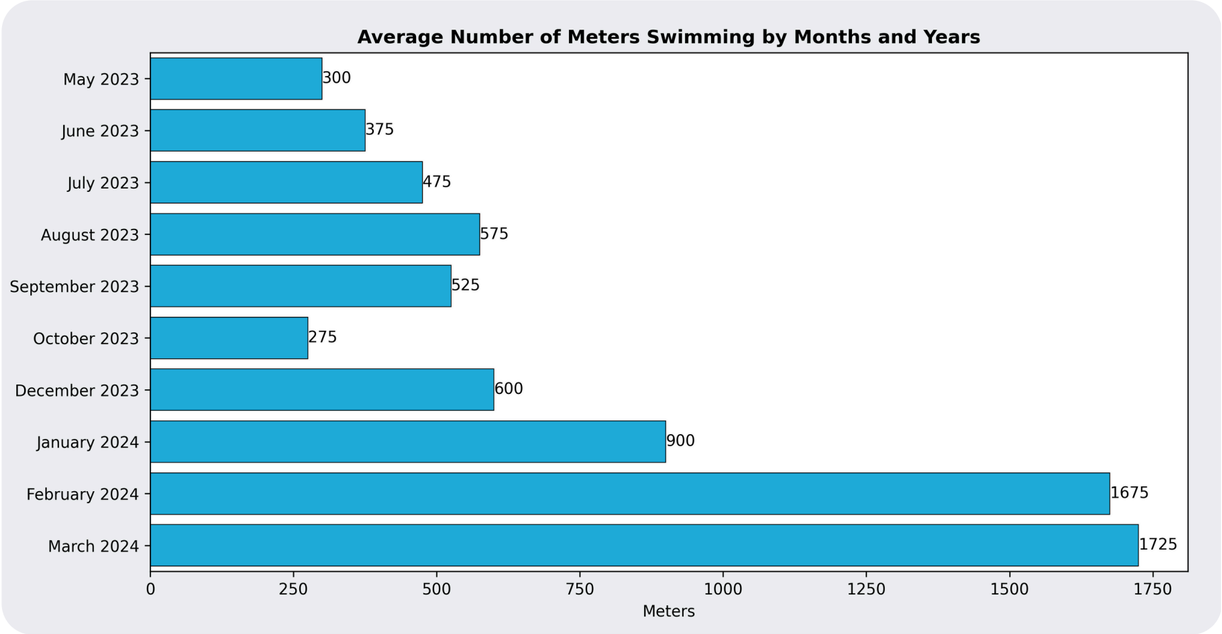


The graph clearly demonstrates a positive trend, with an overall increase in swimming hours and minutes over the years. The initial months of May 2023 and June 2023 show relatively low total hours because at that time I was just started. However, as the months come to an end, particularly in February 2024 and March 2024 , the total hours spike significantly. Similarly, the second graph depicting the average number of minutes spent swimming follows a similar trend. In the middle of October 2023, the data shows a significant decline.

SWIM ANALYTICS

Infographics

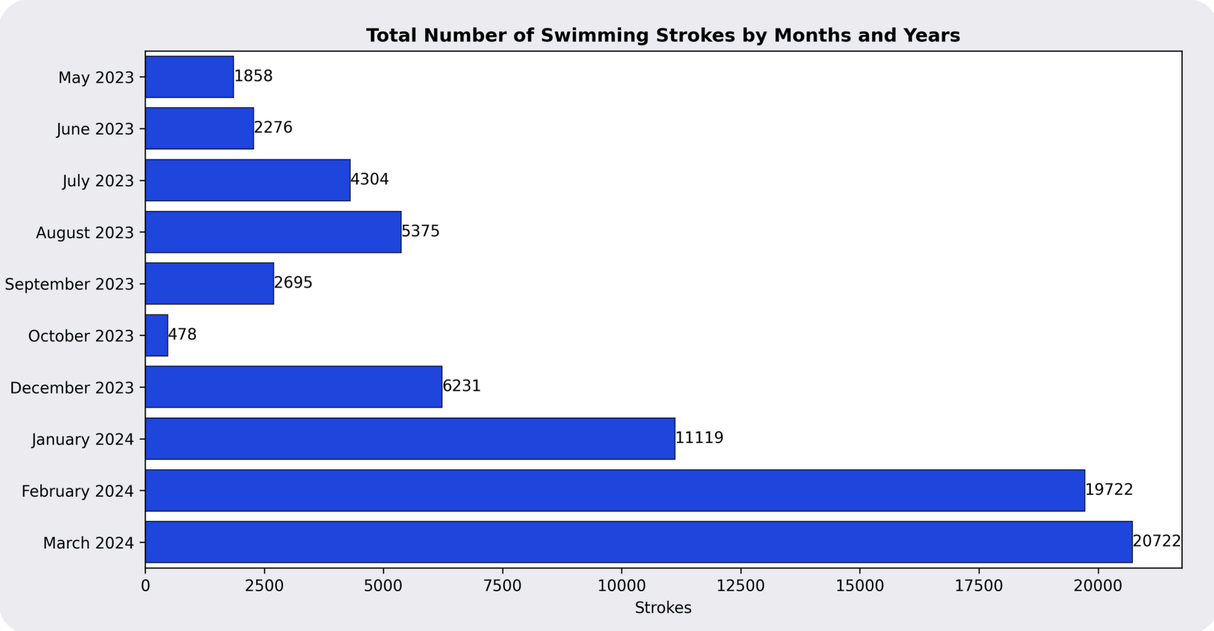


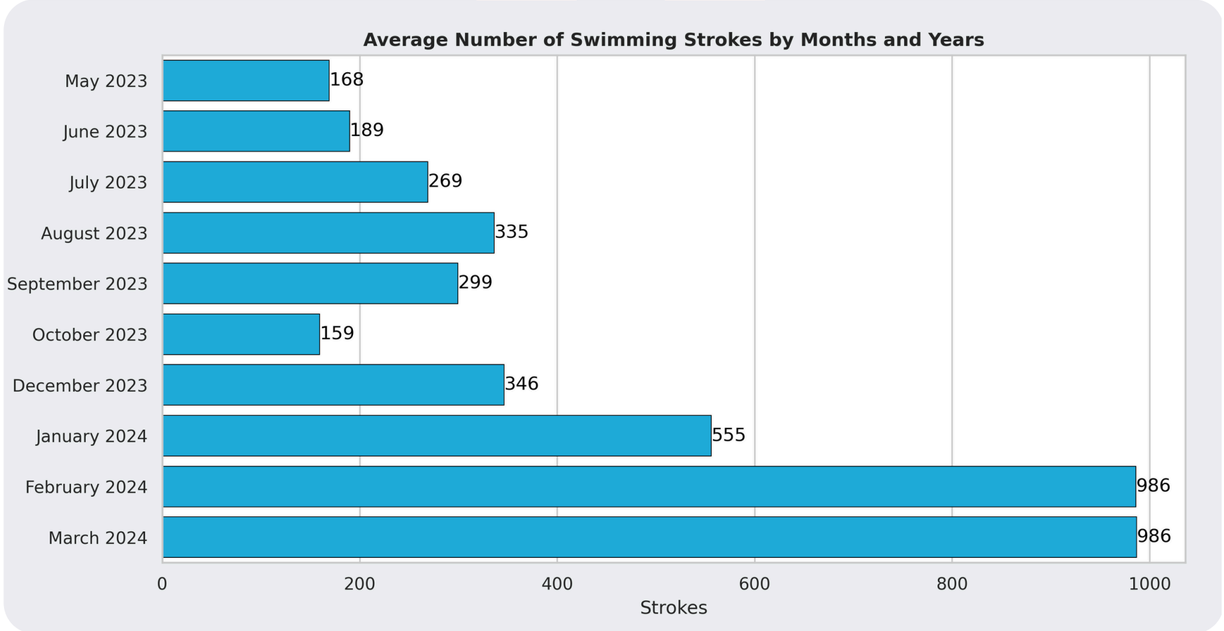


According to the graph provided, during the months of May and June, with recorded distances of 3.3 and 4.5 kms respectively compared to the distances swum in February and March, which were 33.6 and 36 kms respectively. This represents a significant improvement . As well as, the second graph illustrates that my average swimming distances in February and March were 1675 and 1725 meters respectively. This demonstrates consistent improvement over time, which is a positive development. These results indicate that my swimming skills have improved significantly over the specified time period.

SWIM ANALYTICS

Infographics

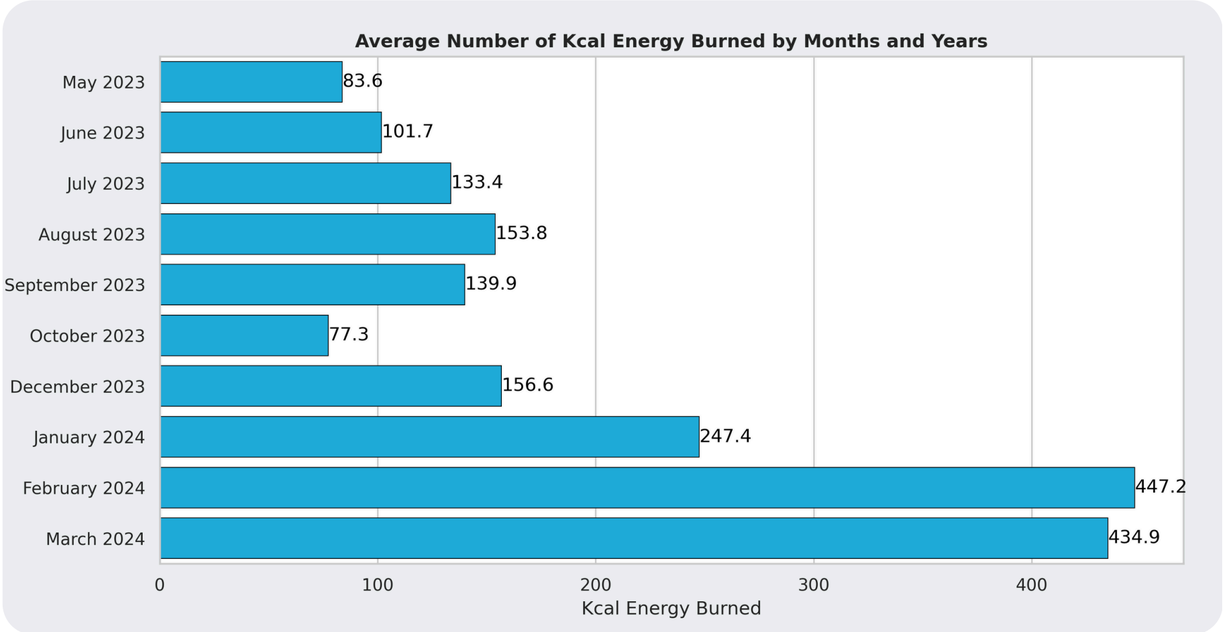


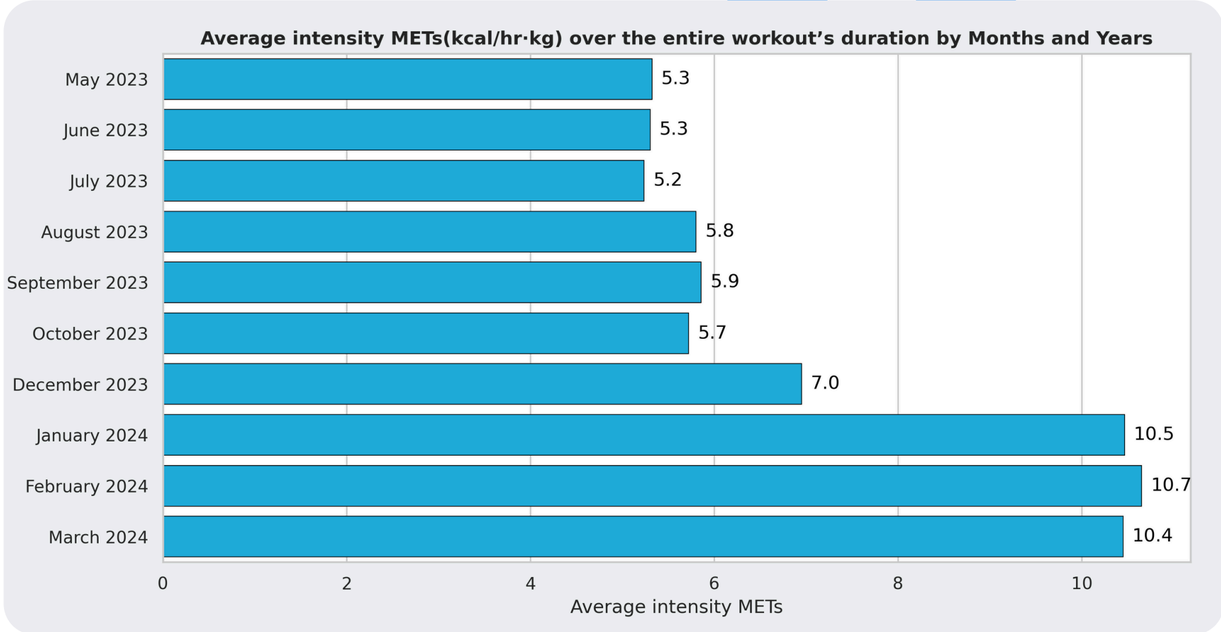


The swimming strokes data reveals that both the left and right arm strokes are counted during each session. The graph illustrates that a total of 19,722 strokes were recorded in February, and this number increased to 20,722 in March. Additionally, the average number of strokes remained consistent at 986 strokes for both months. This indicates significant progress and improvement in the stroke technique. It is evident that the majority of progress was observed during the months of February and March.

SWIM ANALYTICS

Infographics





According to research, engaging in moderate swimming activities can result in burning approximately 223 calories per 30 minutes. Looking at the graph, it is evident that in the months of February and March, there was an average of 447.2 and 434.9 calories burned, respectively. However, swimming at a faster pace can increase the Average intensity MET value to 9.8. The graph shows that during January, February and March, the MET values were recorded as 10.5, 10.7 and 10.4 respectively. Although these values are already quite high, there is room for improvement in order to maximize the calorie burn during swimming activities.

SWIM ANALYTICS

Why is There a Gap in October and November 2023 Swimming Data?

Cause of Injury

While swimming one day, I experienced back pain that persisted for a few days. Initially, I dismissed it as a simple neck problem and didn't take much care of it. However, as time went on, the pain intensified, making it difficult for me to move my neck. To my surprise, a visible bump also developed on my back. Realizing the severity of the situation, I decided to seek professional help and visited a physiotherapist for treatment. The physiotherapist recommended a 15-day treatment plan to help me recover from my back injury. Additionally, the doctor advised me to refrain from swimming during this time. This news was difficult for me to accept, as swimming was not only a passion but also a form of exercise that brought me joy and relaxation. Nonetheless, I understood that my injury required proper rest and rehabilitation. Consequently, I made the difficult decision to stop swimming for two months while I focused on my recovery.

Is it necessary to upload injury image and explaination.?

As an analyst, I am responsible for analyzing and interpreting data accurately. When there is missing data for a period of two months due to injuries, it becomes essential to address this gap in the analysis. By uploading injury image and explaining them, I can provide a comprehensive understanding of the impact these injuries had on the overall swimming performance. This approach ensures transparency and clarity in presenting the findings of the project.

SWIM ANALYTICS

Achievements

After recovering from my illness, I come back for swimming with new energy. The experience had taught me the importance of taking care of my body and cherishing my health. Eager to make up for lost time, I decided to restart my passion for swimming.

No.	Date	Stroke Count	Distance Meter	Distance Kms	Laps	Duration Min	Duration Hour	EnergyBurnedKcal	HKAverageMETs(kcal/hr·kg)
1	2024-02-25	1697	2800	2.8	112	68.59	1.14	733.8	11.19
2	2024-02-18	1502	2600	2.6	104	64.21	1.07	689.48	11.23
3	2024-03-17	1511	2600	2.6	104	64.59	1.08	659.99	10.75
4	2024-03-08	1401	2500	2.5	100	62.56	1.04	646.09	10.85
5	2024-03-11	1398	2500	2.5	100	62.16	1.04	645.12	10.75
6	2024-03-30	1407	2300	2.3	92	62.39	1.04	604.16	10.25
7	2024-02-27	1285	2200	2.2	88	53.31	0.89	566.83	11.14
8	2024-03-14	1279	2200	2.2	88	55.31	0.92	565.02	10.75
9	2024-02-29	1041	1850	1.85	74	44.98	0.75	474.88	10.52
10	2024-03-15	1046	1800	1.8	72	42.74	0.71	439.07	10.82

In this report, I present the data on my **top 10 swimming drills**, highlighting the longest distance covered, laps (25m pool), the time taken, stroke utilized, and energy burned during one continue session. These drills have been carefully selected based on their effectiveness in improving overall swimming performance. By analyzing this data, gain valuable insights into training and make informed decisions to enhance skills.

The inclusion of information such as distance, laps, time, stroke, and energy burned provides a comprehensive overview of each drill's impact, allowing swimmers to track their progress and set realistic goals for improvement.

SWIM ANALYTICS

50 Meter FreeStyle Sprints (25m Pool)

Goals

In previous slides, my focus has been on strength training, as indicated by infographics and findings. However, now I am ready to shift my attention towards achieving my ultimate goal of improving my time for 50-meter freestyle sprints for state level competition. While strength training has its importance in building stamina, power and muscle, it is crucial to understand that speed and agility are equally vital for sprinting.

Sprints	Seconds	Pace
Freestyle Swim	50m 00:31	1'02''/56
Mixed Swim	50m 00:32	1'05''/52
Mixed Swim	50m 00:33	1'06''/48

Average Sprints: Timings for the 50 meter sprint have been recorded as 31, 32, and 33 seconds. However, there is a positive trend emerging as these timings are now improving.

Mixed Swim	50m 00:28	0'56''/50
Mixed Swim	50m 00:29	0'58''/52

There have been remarkable advancements with impressive timings of 28 and 29 seconds.

Butterfly Swim	25m 00:12	0'49''/76
Butterfly Swim	25m 00:18	1'12''/100
Butterfly Swim	25m 00:17	1'08''/84

Errors: Instead of recording the full 50m, sometimes it only detected 25m with varying time intervals of 12, 18, and 17 seconds.

Record	Seconds	Name	Nationality	Date	Meet	Location
World	20:16	Caeleb Dressel	United States	21/11/2020	International Swimming Leaugue	Budapest, Hungary
India	22:22	Virdhawal Khade	India	06/12/2019	South Asian Games	Kathmandu, Nepal

In the world of sports, timing is everything. Athletes strive to achieve the fastest times possible. When it comes to the world's best timings, there have been incredible records set, with these athletes completing races in as little as 20 & 22 seconds. These timings are the extraordinary speed and skill of these individuals.**In comparison to these legendary timings, my personal best stands at 28 seconds,** I still consider it quite okay. To accomplish my goal, I will need to incorporate specific training techniques that enhance my explosiveness and quickness in the water. This may involve working on my stroke technique, refining my starts, turns & dolphin kicks, and implementing interval training to improve my speed endurance. By targeting these areas, I can maximize my potential and strive towards achieving faster times in the 50-meter freestyle sprints.

Note: B'coz sprints are too faster sometimes watch forget the sprints name, also there have some cons while collecting sprints timings as well as with pool which will be discussed in next slide.

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Cons +

50m Sprints: In order to capture the sprint times, it is essential to tap the watch before the swim begins and also tap end it after the sprint are completed, it’s too takes some seconds from my sprint, also due to wet hands sometimes tap on watch but sprint not recorded, so the taps play a crucial role for sprints and number of seconds, even I performed sprints after my strength training that also affects with sprint timings due to energy used.

Terms Block: The absence of a starting platform, also known as a terms block, in our pool has significantly affected my sprint timings. The terms block is a crucial component of a swimmer's race preparation, providing a stable and advantageous starting position. Without a terms block, swimmers are forced to rely solely on their push-off from the pool edge, which can be less efficient and slower. The terms block allows swimmers to generate more power and momentum, resulting in a faster start and improved overall race performance. Unfortunately, without this essential equipment, my sprint timings have suffered, and I am unable to achieve my full potential in the pool

Summer: During the summer season now, the swimming pool is filled with numerous people and especially children's on their vacations. Due to the high number of people and kids in the pool, it becomes challenging for me to practice and perform sprints thats why currently refused to practicing for fast sprints. However, I adapt my training routine and focus on strength training by swimming approximately 1500 meters. Despite the crowded environment, I face several issues such as people's legs touching my head, face, glasses, or any part of my body. Nevertheless, I persist with my strength training because I believe that nothing is impossible. If I want to achieve something, I must be willing to face these minor accidents and continue working towards my goals.

SWIM ANALYTICS

Thank You

“Remember, The Water is 800 Times Dense than Air.”
This emphasizes the need for consistent practice and strong swimming techniques.
During this presentation, I would like to highlight my swimming skills and proficiency in data analytics.
If you want to deep dive into any analytical projects that require thorough examination of data and insights like this, then let me know. I am confident that my skills in data analytics can be of great value.
Thank you for considering my presentation and taking the time to review my findings. I look forward to your feedback on this project.

Contact

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Project Information

Website

Inquiry