DEPARTMENT OF DATA ANALYTICS

VEPHLA UNIVERSITY

LESSON DAY 16 TASK NUMBER 16B (III)

ALO SAVE IBU

VEPH/20B/DA097

TECHNICAL REPORT FOR TURBO BIKERS 2023 PERFORMANCE REPORT

OUTLINE

- ✓ **Introduction**
- ✓ **Story of Data**
- ✓ **Data Splitting and Preprocessing**
- ✓ **Pre-Analysis**
- ✓ **In-Analysis**
- ✓ **Post-Analysis and Insights**
- ✓ **Data Visualizations & Charts**
- ✓ **Recommendations and Observations**
- ✓ **Conclusion**
- ✓ **References & Appendices**

INTRODUCTION

Objective of the Project: This project is designed to analyze the general performance of Bikers representing different teams that participated in a tournament, their individual achievements and country of origin.

Problem Being Addressed: This project will try to analyses and address the factors that may influence individual and or team performance in general.

Key Datasets and Methodologies: The dataset used is the race details (wins and points). The methodology employed is the use of pivot tables, line charts, bar charts, column charts and pie charts to analyze the data to identify trends and hidden patterns.

STORY OF DATA

Data Source: The data was obtained from Kaggle.com

Data Collection Process: This data was obtained from Kaggle.com

Data Structure: The data contains 275 rows with each representing a distinct race / event . And 15 columns representing Bike Number, Rider name, Class, Season, home country, motorcycle, team, Races participated, Wins, Podium, Pole, fastest lap, points, Placed, and World Championships.

Important Features and Their Significance:

- ✓ Bike number – this is the specific number assigned to each bike to differentiate them.
- ✓ Rider Name – this is the name of the rider.
- ✓ Class – this is the class of the Race.
- ✓ Season – this is the date of the race.
- ✓ Home country – this is the country of origin of the bikers.
- ✓ Motorcycle – this is the brand of motorcycle used for the race
- ✓ Team – this is the team each biker belongs to.
- ✓ Races participated – this is the number of race a biker participated in on each day of the tournament.
- ✓ Wins- this is wins recorded.
- ✓ Podium – this refers to the top three position.
- ✓ Pole- this is thee first starting position occupied by the driver with the fastest qualifying time.
- ✓ Fastest lap – this is the fastest lap in the race.
- ✓ Points – this is the points earned in the race.
- ✓ World championship – this is the number of championship titles won by a biker.

Data Limitations or Biases

There is no data limitations observed.

DATA SPLITTING AND PREPROCESSING

Data Cleaning: The data was cleaned by removing duplicates, identifying and removing blanks, and ensuring that no inconsistencies are observed. Thereafter, the data was converted to a standard excel table to ease analysis.

To remove duplicate, simply copy the entire data (ctrl +shift + end) then navigate to the data tab and on the data tools ribbon to select "remove duplicates".

To identify and remove blanks, simply copy the entire data (ctrl +shift + end) on the home tab navigate to the editing ribbon and click "Find and select", then navigate to "Go to Special" and select "Blanks", finally click on OK.

Handling Missing Values: There were no missing values in the data.

Data Transformations: No data transformations were performed.

Data Splitting: The data was splitted into dependent and independent variables. The dependent variables are Wins, Podium, Pole, Fastest lap, Points, Placed, and World Championship.

While the independent variables are Rider Number, Rider Name, Class, Home, Country, Team, Races participated.

Industry Context: the data is from the motorcycle racing industry.

Stakeholders: The Coaching Staff/ Technical Crew.

Value to the Industry: This analysis will help to identify areas where the players ad teams need to adjust or improve in order to win more races, earn more point and win more championships.

PRE-ANALYSIS

Key trends: Mark Marquez is the dominant biker.

Potential Correlations:.

IN-ANALYSIS

Unconfirmed Insights:

1. The day with the highest wins was recorded on 10th July with 39 wins recorded while the day with the Lowest wins is 1st July with no wins recorded.
2. Spain is leading the National ranking with 1,6279 points earned.

3. Marc Marquez has the highest number of Championship Titles (8 Championships)
4. The best Motorcycle is the Ducati earning 6,848 points
5. The highest overall point earned by a Rider is 4,101 points recorded by Marc Marquez

6. The best Team is the Red Bull KTM Ajo

Recommendations:

1. Find out the bikers with Wins on this day and explore reasons and measures to sustain and improve performance.
2. Bikers from Spain have good potentials.
3. Reward Marc Marquez, find out why his performance is excellent and ensure his performance does not drop in the coming season
4. The Ducati Motorcycle should be used more frequently to win more race
5. The Red Bull Team should be Rewarded for leading the other Teams
6. Red Bull KTM Ajo should be rewarded to ensure they are motivated for the next championship tournament.

Analysis Techniques Used in Excel:

Pivot Tables were used to analyze the data in order to generate meaningful visual insights.

Other features used are

Grouping- this was used to group the dates from days to Months

Sorting- this was used to arrange data from the highest to the lowest and vice versa.

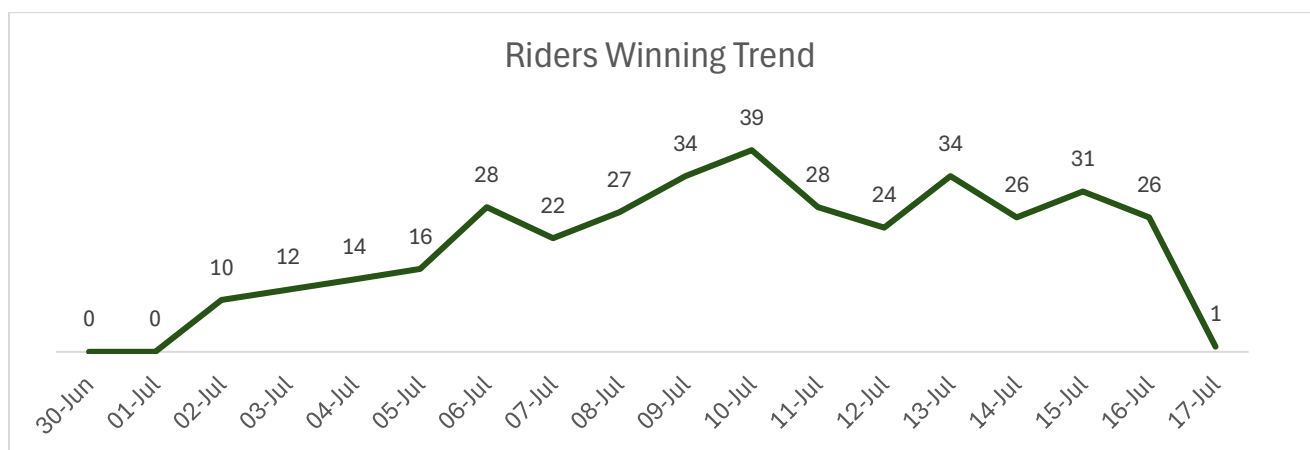## POST-ANALYSIS AND INSIGHTS

Key Findings:

1. Marc Marquez was the best rider with a total of 4,101 points, 89 wins and 8 Championship Titles.
2. Somkiat Chantra was the least performing rider with a total of 482 points, 2 wins and no Championship title.
3. Maverick Vinales came second on total points earned at 2739 but came third on win rate ranking with 26 wins recorded.
4. Johann Zarco came third on the points ranking but failed to make the top five slot for the win rate ranking**.**
5. Ducati has the highest points at 6,848 followed by Kalex at 6,712 and KTM at 5,728
6. Red Bull KTM Ajo was the best team with a total point of 3,626 followed by Rapsol honda at 2,761 points and Ducati Lenovo at 2,382 points. while RTZ Racing, Pons Racing Junior Team, Minimoto, Portomaggiore Andaluca -a Banca CA- vica, San carlo team Italia and Twelve Racing all closed without a point.
7. Spain occupied the number one spot on the national ranking with 16,279 points, closely followed by Italy at 9,098 points. the least performing Country was Thailand with 482 points.

Comparison with Initial Findings:

Mark Marquez was expected to dominate the race but however, total dominance andsuch wide point gap was not expected.
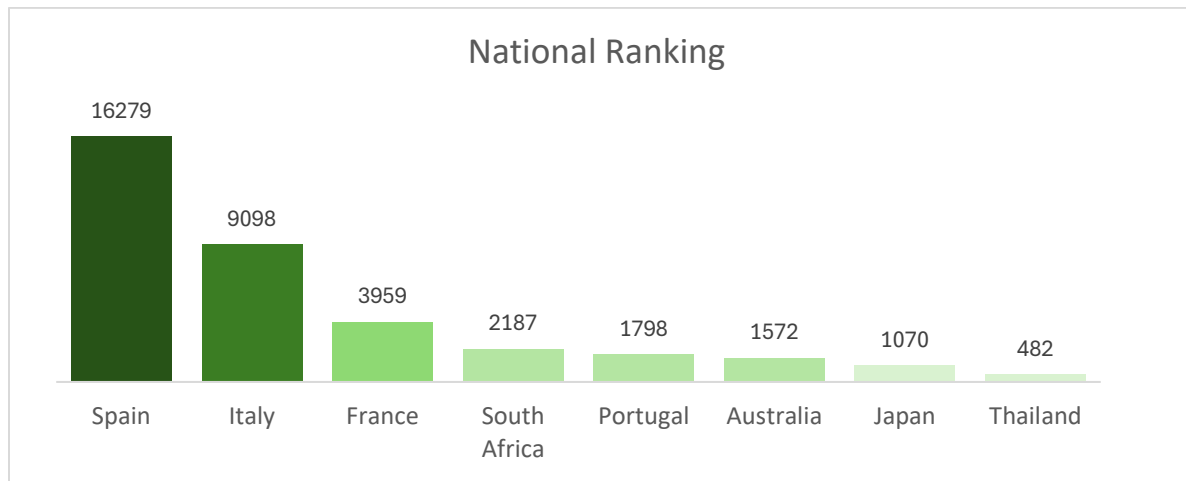
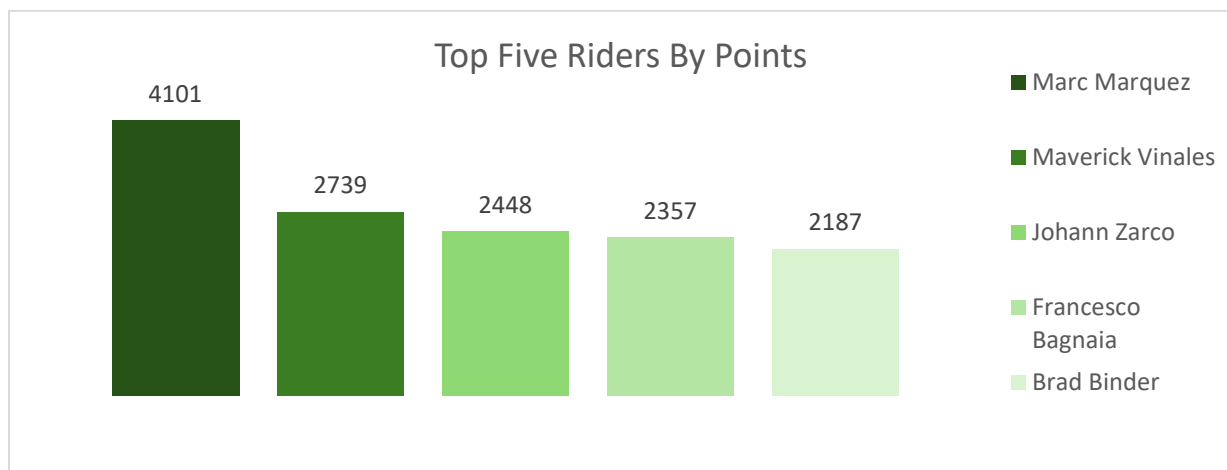## DATA VISUALIZATIONS & CHARTS

RIDERS WINNING TREND

The above chart highlights the winning trend of the riders for the duration of the tournament. 30th June and 1st july recorded no wins, 2nd , 3rd, 4th, and 5th of july recorded 10,12,14,and 16 wins respectively. 6th july was a good day with 28 wins recorded, the highest so far in a day followed by a drop to 22 wins on the next day. The highest wins recorded in a day was on 10th july with 39 wins followed by 28,24, 34, 26 ,31 and 26 win recorded on 11th to 16th respectively. The event closed on 17th july with just one win.

NATIONAL RANKING

The above chart highlights the national ranking of individual bikers. Spain is leading the pack with 1,629 combined points followed by Italy at 9,098 combined points. France, south Africa, Portugal and Australia trailed behind at 3,959, 2,187, 1,798 and 1,572 combined points respectively. At the bottom of the ranking is Japan and Thailand trailing at 1,070 and 482 combined points respectively.
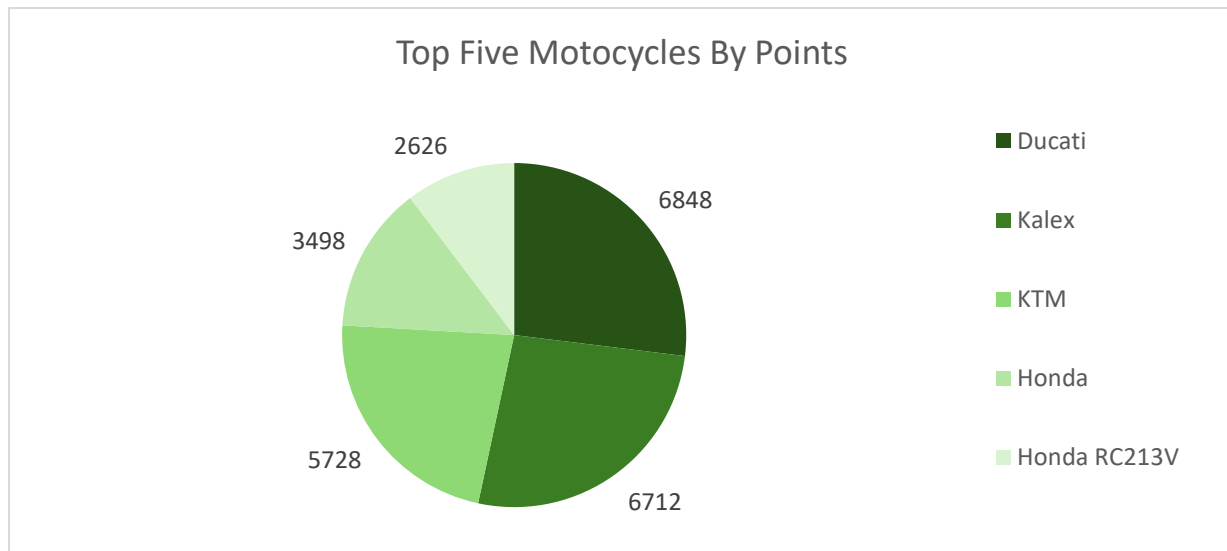
TOP FIVE RIDERS BY POINTS

The above chart highlights the top five riders ranked based on total points earned.
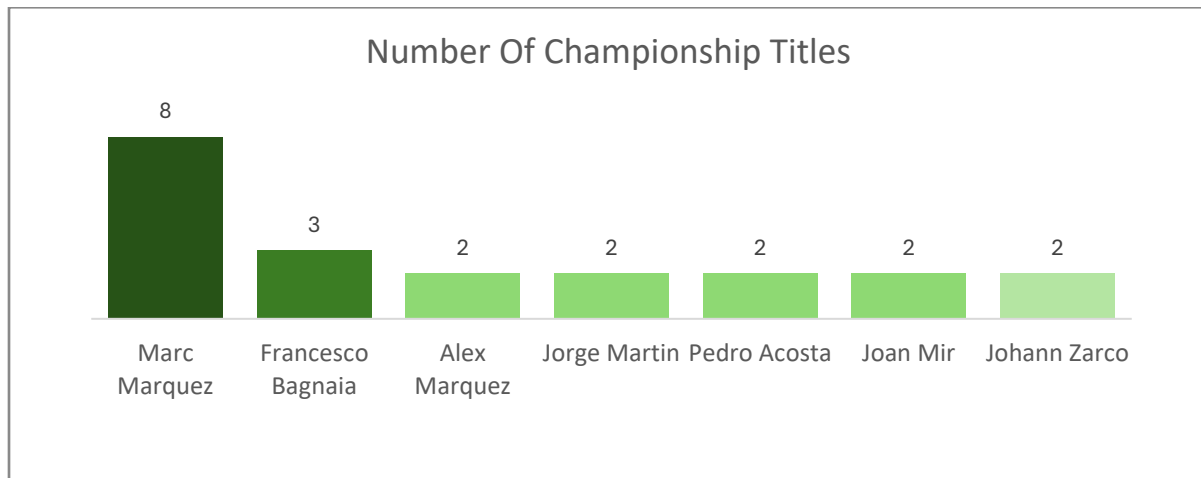
Mark Marquez is leading the pack at 4,101 points followed by Maverick Vinales at 2,739 points. The bottom three in the top five ranking are Johann Zarco at 2,448 points, Francesco Bagnaia ar 2,357 and Brad Binder at 2,187 points.

TOP FIVE MOTOCYCLES BY POINTS

Top Five Motocycles By Points

2626

6848

3498

5728
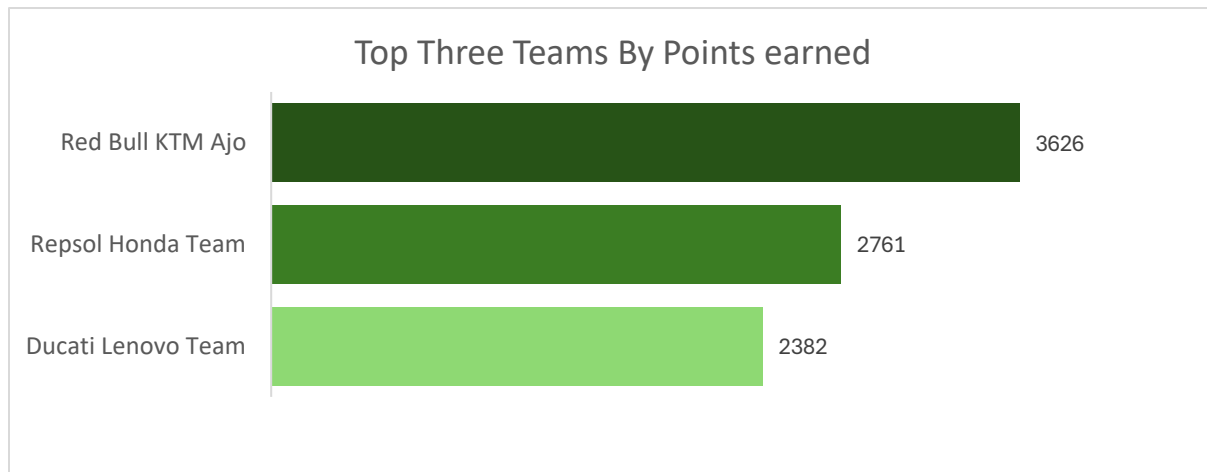
6712

■ Ducati

■ Kalex

■ KTM

■ Honda

■ Honda RC213V

The above chart highlights the top five motorcycles based on points won. At the top spot is Ducati at 6,848 points, followed by the Kalex at 6,712 points, KTM at 5,728 points , Honda at 3,498 points and lastly Honda RC213V at 2,626 points.

NUMBER OF CHAAMPIONSHIP TITLES
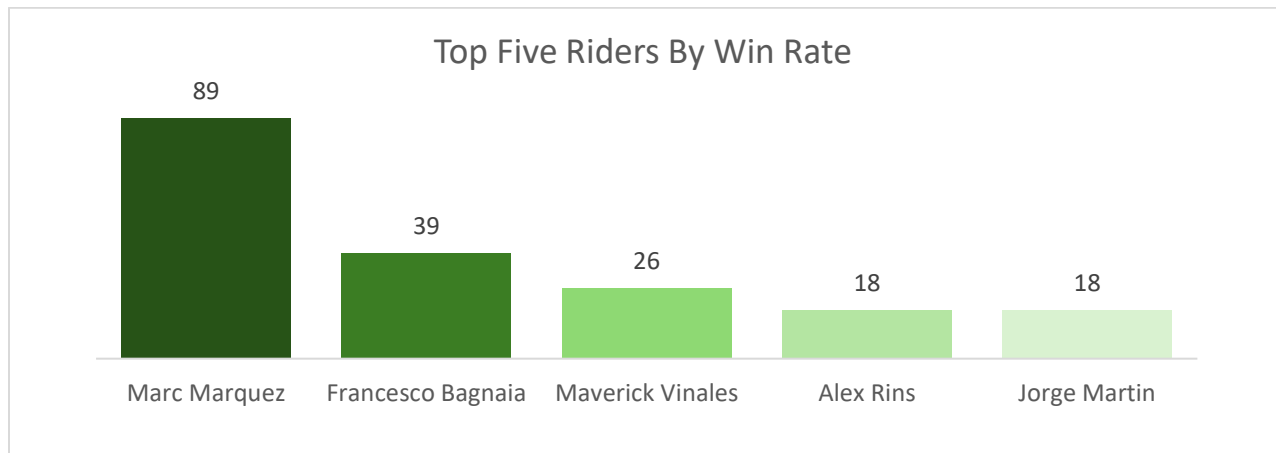
Number Of Championship Titles

The above chart highlights the number of championship titles won by each biker. Mark Marqueze is leading the pack at 8 championships won, closely followed by Francesco Bagania with 3 championships won. Alex Marquez, Jorge Marthin, Pedro Acosta, Joan Mir, and Johan zarco all closed at 2 championship titles won each.

TOP THREE TEAMS BY POINTS
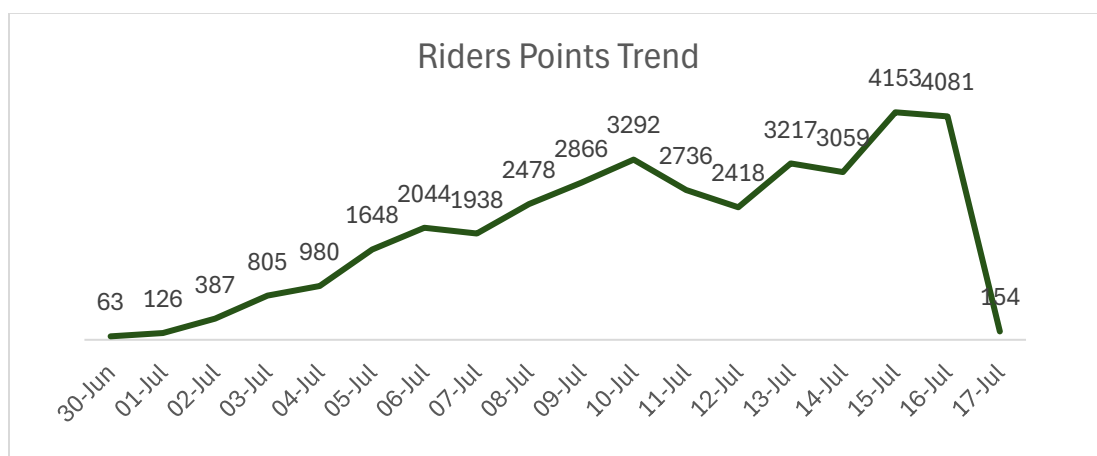
Top Three Teams By Points earned

The above chart highlights the top three teams ranked by points earned. Red Bull KTM Ajo is leading at 3,626 points followed by Repsol Honda Team at 2,&61 points and lastly Ducati Lenovo team at 2,382 points.
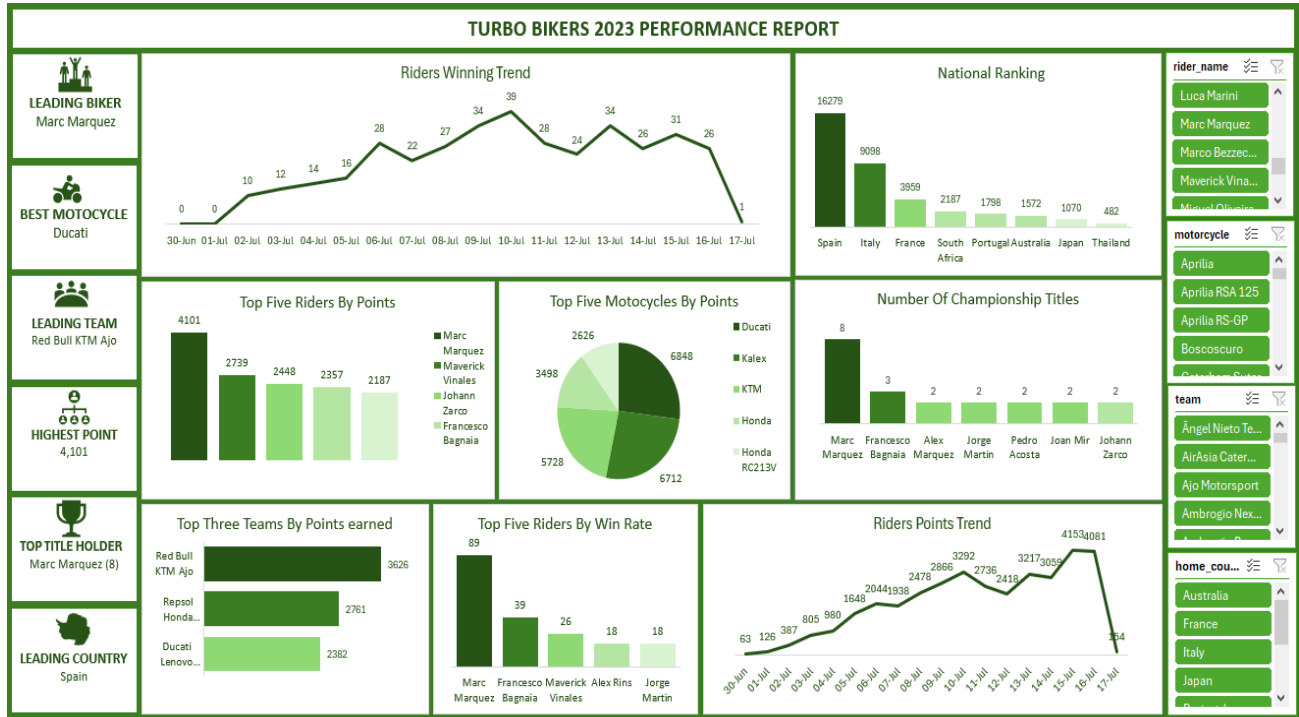
TOP FIVE RIDERS BY WIN RATE

The above chart highlights the top five riders by win rate. Marc Marquez is leading at 89 wins. The second on the ranking is Francesco Bagnaia at 39 wins while Maverick Vinales closed at 26 win. Alex Rins and Jorge Martin closed at 18 wins each to complete the top five spot.

RIDERS POINTS TREND

The above chart highlights the riders performance trend based on points earned. The day with the lowest point was 30th June at 63 points, while the day with the highest point was 4,153 points recorded on 15th June at 4,153 points.

FINAL DASHBOARD

The final dashboard highlights the combined correlations and relationship between the individual charts with the help of slicers.

RECOMMENDATIONS AND OBSERVATIONS

Actionable Insights

1. Marc Marquez was the best rider with a total of 4,101 points, 89 wins and 8 Championship Titles.

2. Somkiat Chantra was the least performing rider with a total of 482 points, 2 wins and no Championship title.

3. Maverick Vinales came second on total points earned at 2739 but came third on win rate ranking with 26 wins recorded.

4. Johann Zarco came third on the points ranking but failed to make the top five slot for the win rate ranking.
5. Ducati has the highest points at 6,848 followed by Kalex at 6,712 and KTM at 5,728
6. Red Bull KTM Ajo was the best team with a total point of 3,626 followed by Rapsol honda at 2,761 points and Ducati Lenovo at 2,382 points. while RTZ Racing, Pons Racing Junior Team, Minimoto, Portomaggiore Andaluca -a Banca CA- vica, San carlo team Italia and Twelve Racing all closed without a point.
7. Spain occupied the number one spot on the national ranking with 16,279 points, closely followed by Italy at 9,098 points. the least performing Country was Thailand with 482 points.

Optimizations or Business Decisions:

1. I recommend that Marc be recognized and rewarded for his performance. i also recommend that he be placed on maintenance training in order to retain his position in the next Tournament
2. I recommend that Somkiat Chantra be placed on performance improvement routine to help better his performance in the next tournament
3. Maverick Vinales should improve on his win rate as it will translate to more points in the next tournament
4. Johan Zarco should also improve on his win rate as it will translate to more points in the next tournament.
5. Ducati should be the bike of choice as it has recorded more points than any other motorcycle.
6. Read Bull Ajo should be recognized as the best performing team for the tournament.
7. while the bottom placed teams should be reviewed for improvements
8. Spain should be recognized for producing outstanding bikers during the tournament. i also recommend that more bikers be recruited from Spain in the next tournament as it has good talents.

Unexpected Outcomes:

None.

CONCLUSION

Key Learnings:

Limitations:

The data does not put into account external factors such as the type of terrain, weather conditions and state of health of the riders.

Future Research

Additional research can be conducted to compare the relationship between the win rate for the first lap and the win rate at the end of the race.

REFERENCEE: The data for this project was obtained from Kaggle.com