



Bike Sharing Analysis Framework

December 2022

Agenda



01

Introduction

Business Requirements

02

Data Analysis 1

Category

03

Data Analysis 2

Numeric

04

Data Analysis 3

Time Based

05

Modelling

Linear Regression

06

Recommendations

Suggestions



01

Introduction

Vision of the issue

Explore new business
opportunities
for bike sharing





Data universes

Transportation

Environment

Health

Value expected to generate

- Increased rentals

Increased customer satisfaction





Data sets



Bike Sharing Dataset sourced from
Laboratory of Artificial Intelligence
and Decision Support (LIAAD),
University of Porto

Indicators/ aggregates

- Seasonal
- Work Days
- Weather Conditions
- Rental Bikes Counts



Interpretations

- Relationships examined
- Correlations
- External factors considered
- Additional information

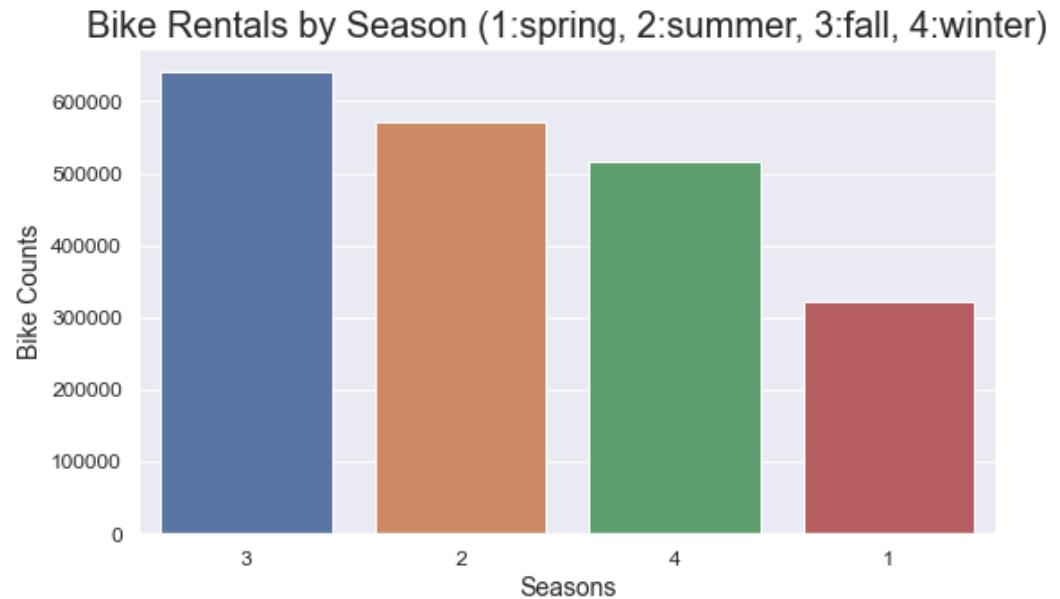
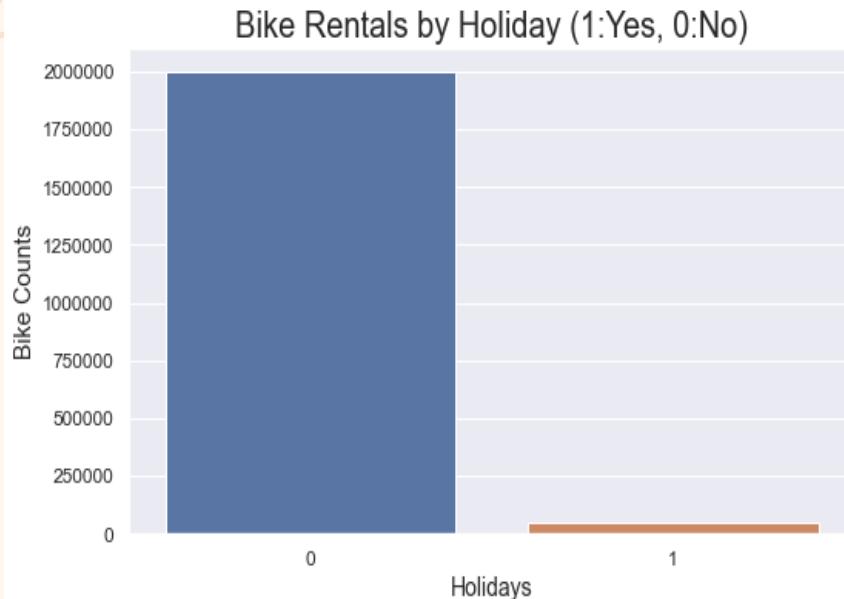


02

Data Analysis 1

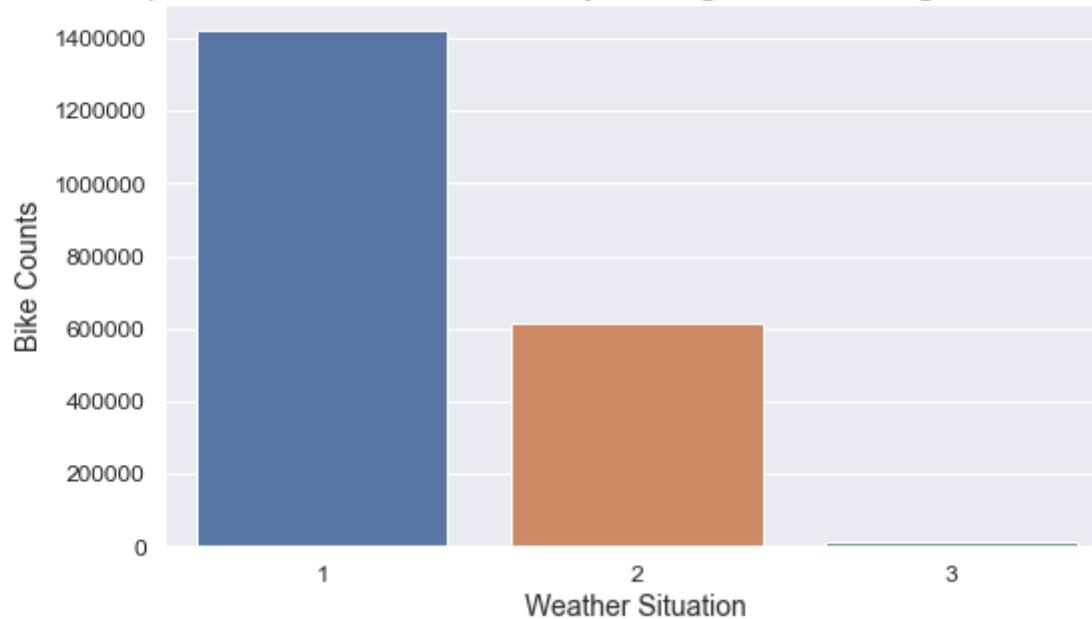


Results Slide 1



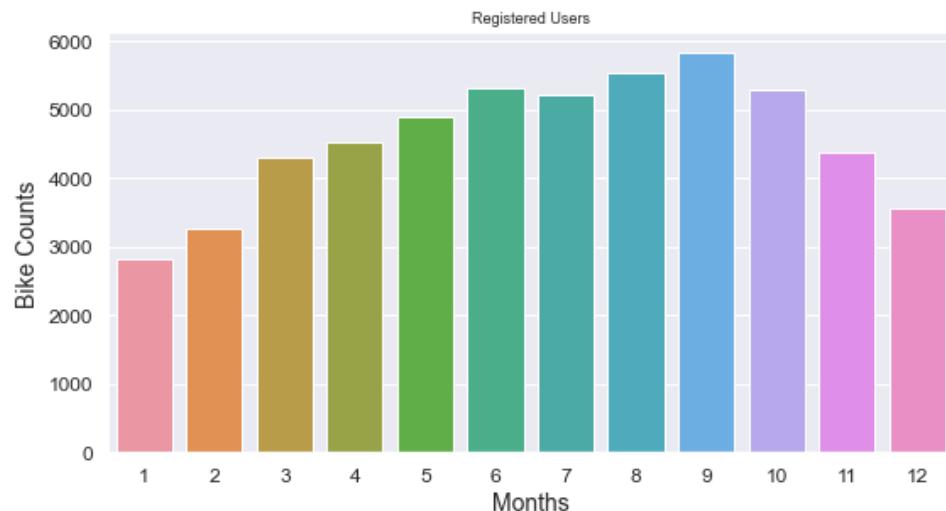
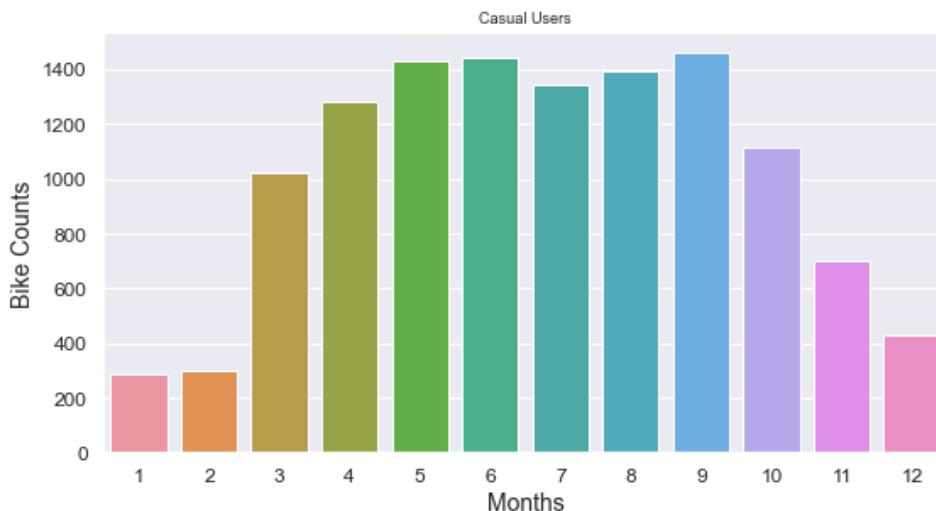
Results Slide 2

Bike Rentals by Weather (1: Clear, 2: Mist + Cloudy, 3: Light Snow, Light Rain, 4: Heavy Rain + Ice Pallets)

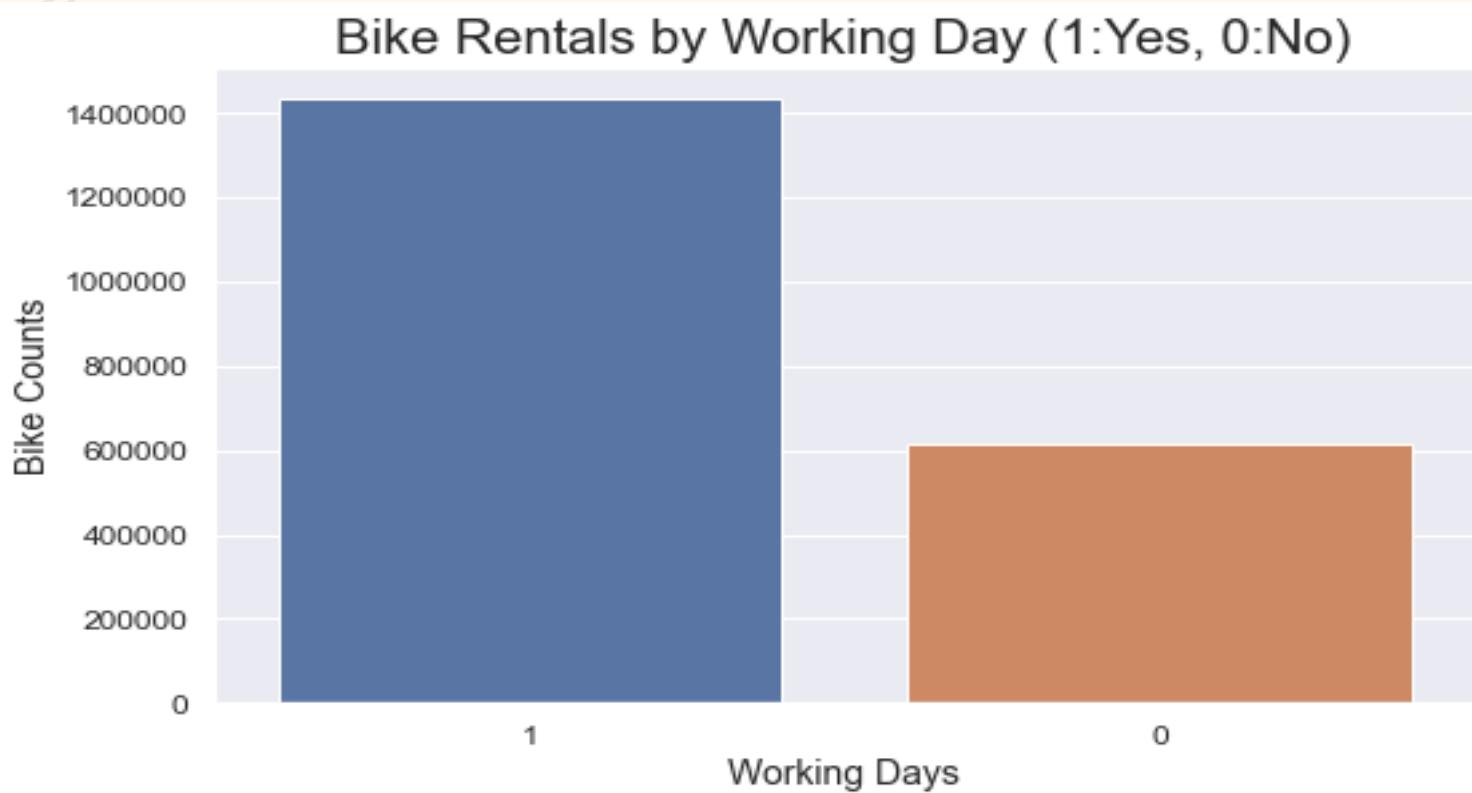


Results Slide 3

Bar Chart of Users



Results Slide 4



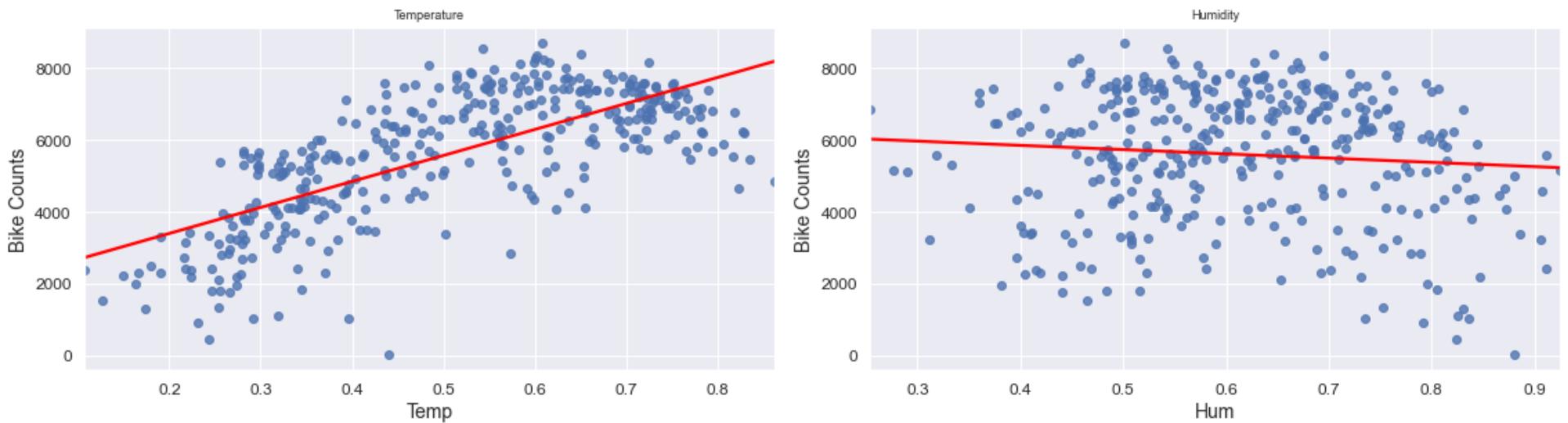
03

Data Analysis 2



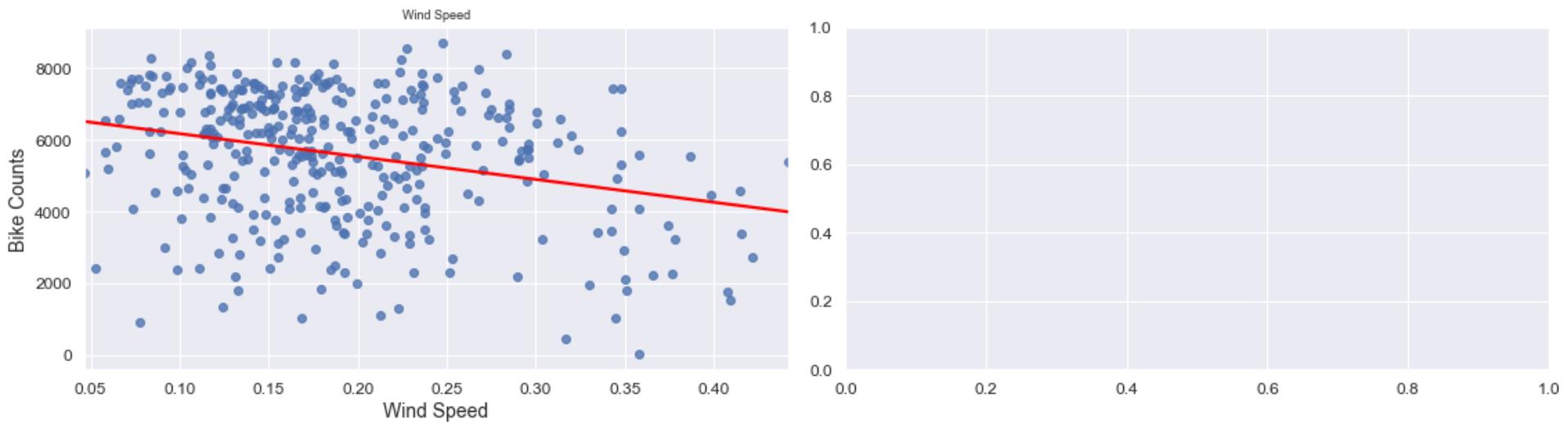
Results Slide 5

Regression Plots



Results Slide 6

Regression Plots



04

Data Analysis 3



Results Slide 7



Results Slide 8





05

Modelling

Linear Regression Model

OLS Regression Results

Dep. Variable:	cnt	R-squared:	0.775			
Model:	OLS	Adj. R-squared:	0.761			
Method:	Least Squares	F-statistic:	56.38			
Date:	Sat, 10 Dec 2022	Prob (F-statistic):	7.55e-98			
Time:	18:54:19	Log-Likelihood:	-2987.0			
No. Observations:	366	AIC:	6018.			
Df Residuals:	344	BIC:	6104.			
Df Model:	21					
Covariance Type:	nonrobust					
	coef	std err	t	P> t	[0.025	0.975]
Intercept	3652.5809	394.680	9.255	0.000	2876.291	4428.871
C(season)[T.2]	1284.0778	291.329	4.408	0.000	711.067	1857.089
C(season)[T.3]	633.2783	355.492	1.781	0.076	-65.933	1332.490
C(season)[T.4]	1811.1192	297.619	6.085	0.000	1225.737	2396.501
C(mnth)[T.2]	193.8039	229.495	0.844	0.399	-257.585	645.193
C(mnth)[T.3]	788.3717	273.275	2.885	0.004	250.872	1325.871
C(mnth)[T.4]	204.8293	396.730	0.516	0.606	-575.492	985.150
C(mnth)[T.5]	138.9056	425.812	0.326	0.744	-698.618	976.429
C(mnth)[T.6]	124.6253	435.294	0.286	0.775	-731.548	980.799
C(mnth)[T.7]	52.1820	477.498	0.109	0.913	-887.001	991.365
C(mnth)[T.8]	658.4425	459.710	1.432	0.153	-245.754	1562.639
C(mnth)[T.9]	1276.8957	404.011	3.161	0.002	482.254	2071.538
C(mnth)[T.10]	497.6166	382.411	1.301	0.194	-254.542	1249.775
C(mnth)[T.11]	-351.0630	367.443	-0.955	0.340	-1073.781	371.655
C(mnth)[T.12]	-304.9467	292.470	-1.043	0.298	-880.201	270.307
C(holiday)[T.1]	-753.5334	282.158	-2.671	0.008	-1308.506	-198.561
C(workingday)[T.1]	188.0863	102.550	1.834	0.068	-13.618	389.791
C(weatherisit)[T.2]	-542.2187	127.083	-4.267	0.000	-792.177	-292.261
C(weatherisit)[T.3]	-2407.7460	411.751	-5.848	0.000	-3217.613	-1597.879
temp	5366.9491	736.970	7.282	0.000	3917.415	6816.483
hum	-1933.1661	506.919	-3.814	0.000	-2930.216	-936.116
windspeed	-3470.2450	648.327	-5.353	0.000	-4745.429	-2195.061
Omnibus:	53.841	Durbin-Watson:	1.306			
Prob(Omnibus):	0.000	Jarque-Bera (JB):	111.403			
Skew:	-0.786	Prob(JB):	6.44e-25			
Kurtosis:	5.199	Cond. No.	40.6			

In Short

It was proven that bicycle rentals are influenced by:

- Seasons
- Particular months
- Particular working days
- Weather conditions
- Temperature



06

Recommendations

Recommendations



Holidays

Boost bike rentals



Spring

Special offers



Months

April to October



Non workdays

Potential openings



Weather

Tricky to predict



Members

Convert casual users

Thanks

Do you have any questions?

youremail@freepik.com

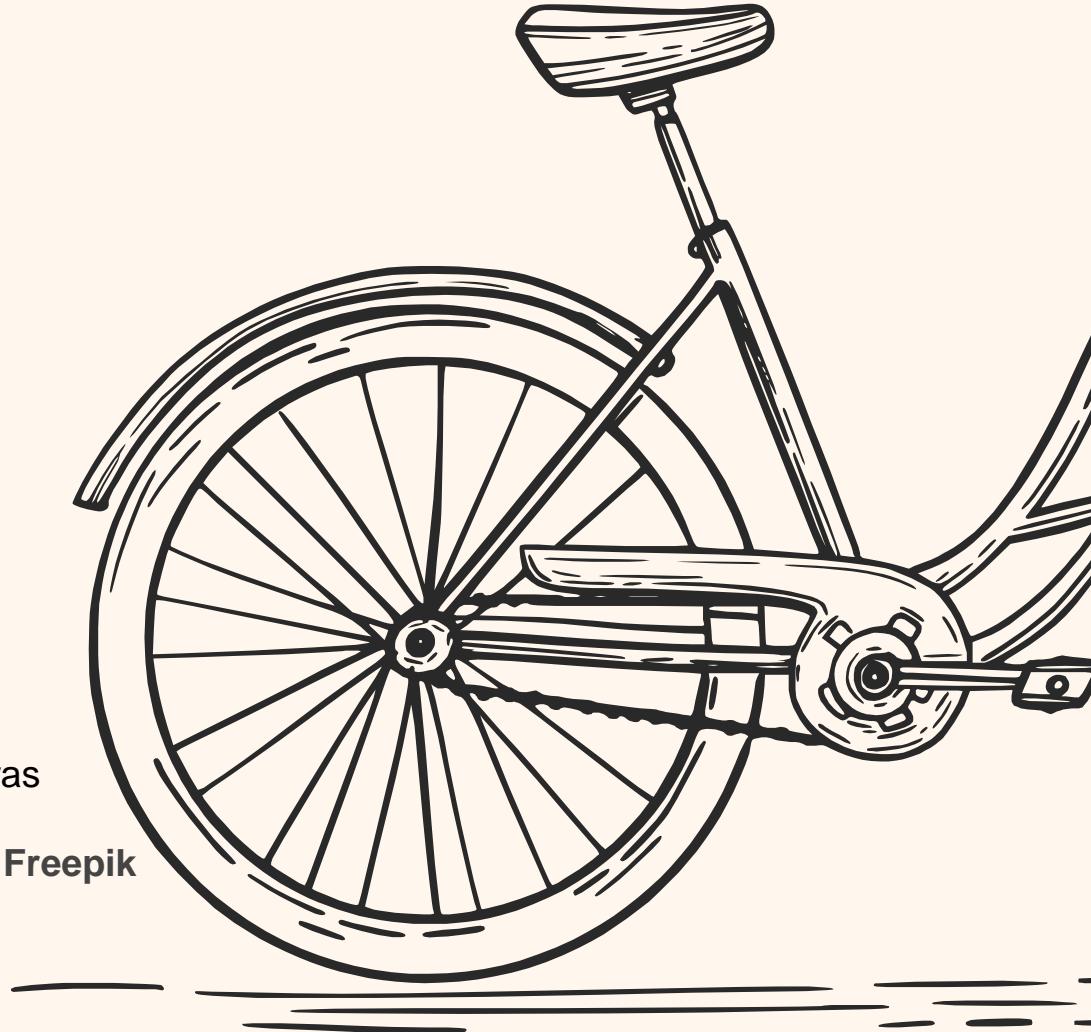
+91 620 421 838

yourcompany.com



CREDITS: This presentation template was created by **Slidesgo**, including icons by **Flaticon**, and infographics & images by **Freepik**

Please keep this slide for attribution





Q & A

