

eleven | ENPC - Data Augmented Proposal Challenge

To the attention of IMI students
September 8th, 2025



eleven
strategy • data • digital



Summary

- I. Case Presentation**
- II. Expected Output**
- III. Practical Information**

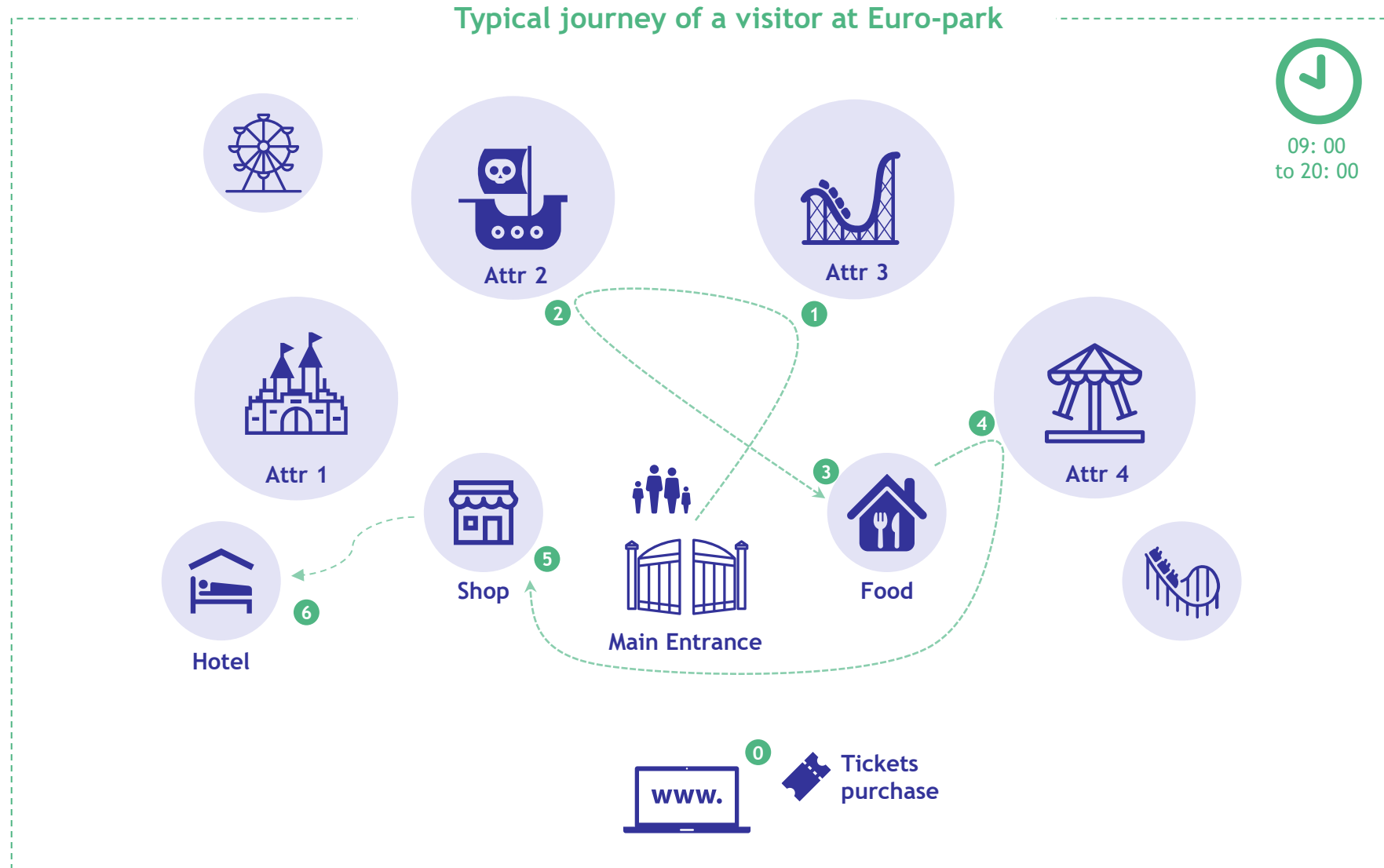
Case Presentation

A roller coaster with yellow tracks and red supports against a blue sky with clouds.

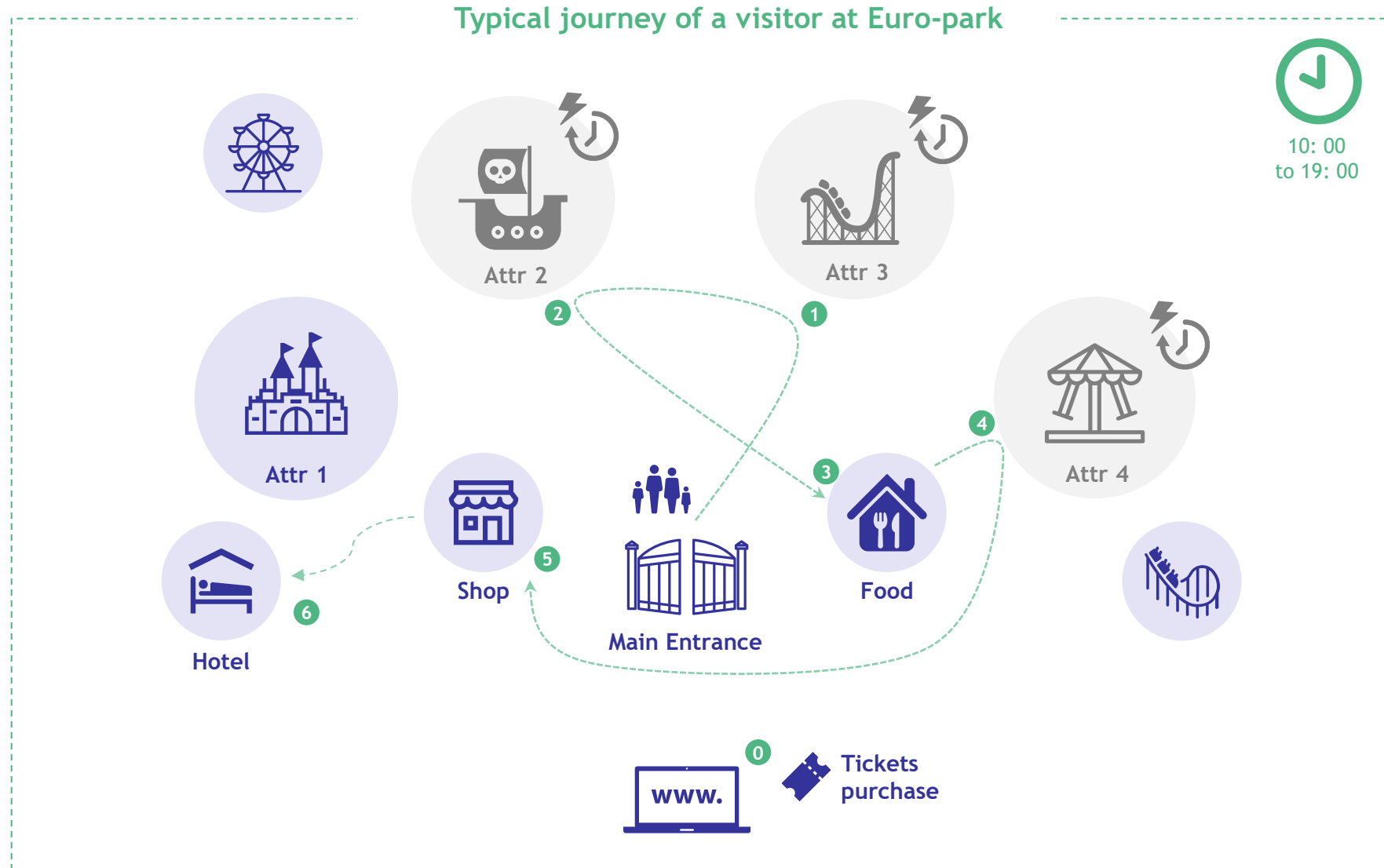
The Endless Line

*Forecasting waiting times in a theme park to
improve visitor experience*

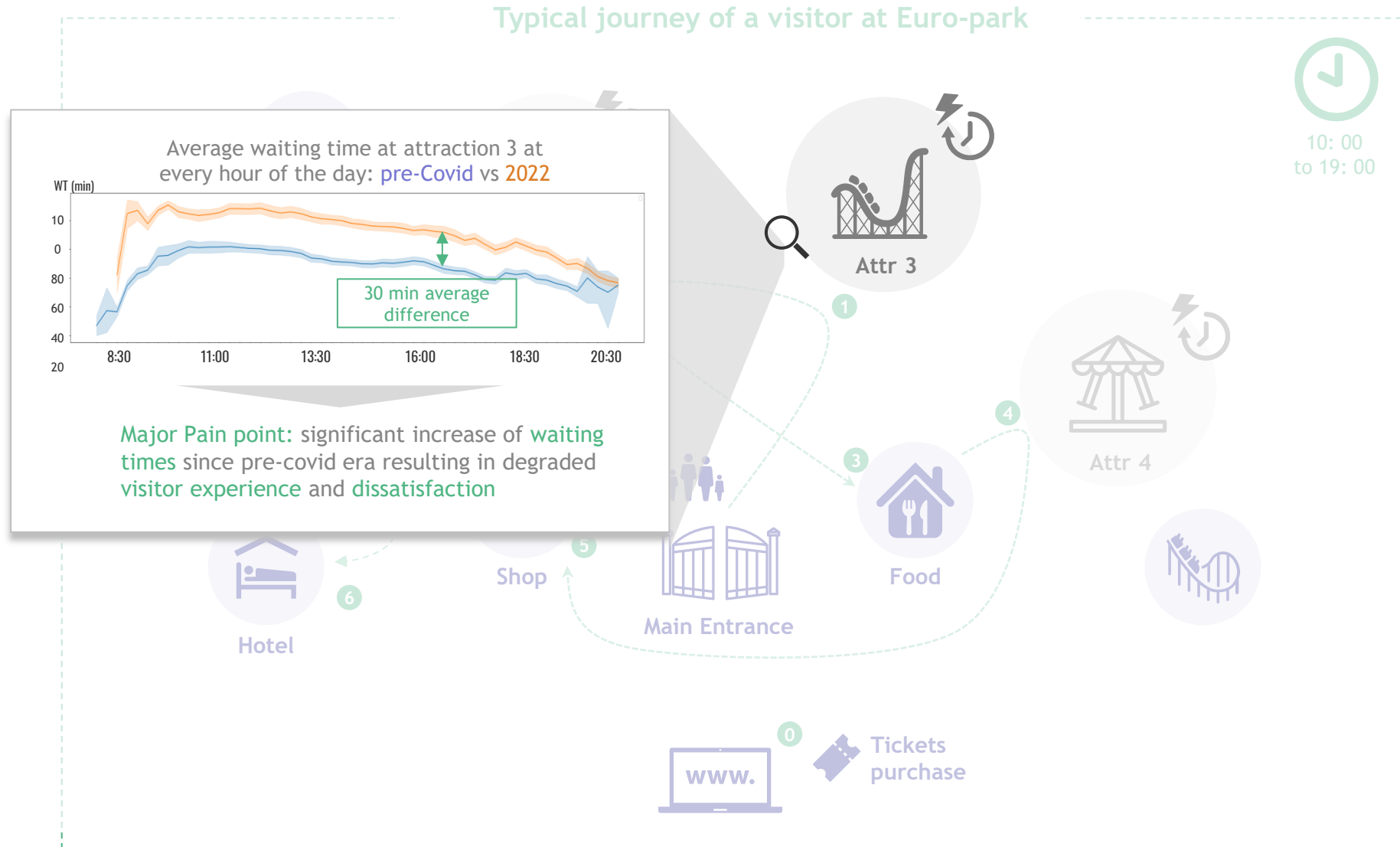
Context: Euro-park, a global theme park, is experiencing a significant increase of **waiting times** at attractions, which affects **visitor satisfaction** (1/3)



Context: Euro-park, a global theme park, is experiencing a significant increase of **waiting times** at attractions, which affects **visitor satisfaction** (2/3)



Context: Euro-park, a global theme park, is experiencing a significant increase of waiting times at attractions, which affects visitor satisfaction (3/3)



Objectives: Euro-park, therefore, wants to accurately **forecast waiting times** for its attractions and identify **use cases** to **leverage** this information to improve the park's **KPIs**

Scope of the case study

1

How to accurately **forecast** attractions waiting times?

2

How to **leverage** this information to **enhance Euro-park's KPIs**?



Deliverables



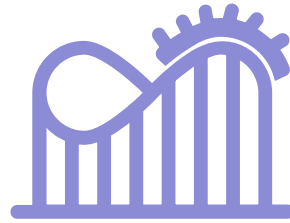
1. The **code** used to build the demo tool



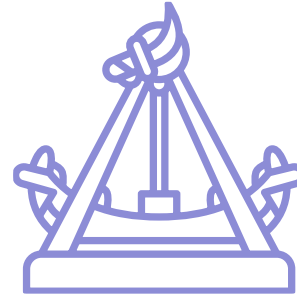
2. A “client-ready” deck of **PowerPoint slides**

Objectives: predict the waiting times of three main attractions 2 hours in advance

Euro-park operates **hundreds of attractions** in the park: in this case study, we will focus on waiting times of three of them



Flying Coaster



Pirate Ship



Water Ride

4 files are available for the analysis:



waiting_times_train.csv



waiting_times_X_test_val.csv



waiting_times_X_test_final.csv



weather.csv





Data available: past waiting times are provided for each attraction at a granularity of **15 minutes**. In the **train set**, you have access to the **prediction variable** : **WAIT_TIME_IN_2H**

The prediction variable

	A	B	C	D	E	F	G	H	I
1	DATETIME	ENTITY_DESCRIPTION_SHORT	ADJUST_CAPACITY	DOWNTIME	CURRENT_WAIT_TIME	TIME_TO_PARADE_1	TIME_TO_PARADE_2	TIME_TO_NIGHT_SHOW	WAIT_TIME_IN_2H
2	05/02/2022 11:45	Water Ride	247.0	0	20				30.0
3	24/02/2019 10:45	Water Ride	247.0	0	30	375.0		495.0	25.0
4	17/07/2021 15:45	Pirate Ship	280.5	0	35				35.0
5	03/04/2022 19:45	Pirate Ship	230.35	0	15	-135.0		195.0	10.0
6	20/10/2021 10:30	Pirate Ship	153.0	0	15				10.0
7	30/05/2022 09:15	Flying Coaster	176.4	0	5	495.0		825.0	10.0
8	22/09/2019 11:45	Water Ride	247.0	0	15	345.0		555.0	30.0
9	10/01/2019 14:30	Water Ride	247.0	0	15	120.0		210.0	15.0
10	20/08/2020 10:30	Water Ride	247.0	0	20				25.0
11	03/02/2022 16:00	Pirate Ship	148.75	0	30				20.0
12	28/08/2019 19:30	Flying Coaster	756.0	0	25	-120.0		210.0	15.0
13	30/09/2020 12:00	Pirate Ship	119.0	0	10				20.0
14	19/02/2019 10:45	Water Ride	224.5	0	15	375.0		495.0	25.0
15	15/12/2018 09:45	Flying Coaster	756.0	0	10	435.0	125.0	735.0	40.0
16	30/10/2021 13:00	Pirate Ship	306.0	0	15				35.0
17	03/04/2022 09:45	Pirate Ship	153.0	0	15	465.0		795.0	45.0
18	15/06/2021 09:30	Pirate Ship	52.7	0	5				15.0
19	06/07/2022 14:45	Water Ride	247.0	0	25	165.0		495.0	25.0
20	07/09/2019 12:15	Flying Coaster	756.0	0	40	315.0		585.0	50.0
21	13/10/2018 11:00	Water Ride	224.5	0	30	390.0	70.0	660.0	25.0
22	23/10/2020 17:00	Water Ride	247.0	0	20				10.0
23	14/12/2019 12:00	Flying Coaster	756.0	0	30	300.0	0.0	600.0	45.0

- Datetime: studied time
- Entity_description_short: the name of the concerned attraction
- Adjust_capacity: the real time capacity of the attraction (ie number of passengers)
- Downtime: time in minutes when the attraction is down during the 15 next minutes
- Current_wait_time: the current waiting times
- Time_to_parade_1, 2, night_show: the time in minutes before the event of the concerned day
- Wait_time_in_2H: the variable we want to predict



Data available: past waiting times are provided for each attraction at a granularity of 15 minutes. In the validation and final set, you only have access to the features

	A	B	C	D	E	F	G	H
1	DATETIME	ENTITY_DESCRIPTION_SHORT	ADJUST_CAPACITY	DOWNTIME	CURRENT_WAIT_TIME	TIME_TO_PARADE_1	TIME_TO_PARADE_2	TIME_TO_NIGHT_SHOW
2	23/11/2019 10:45	Water Ride	247.0	0	20	375.0	75.0	675.0
3	03/01/2022 16:45	Pirate Ship	153.0	0	45			
4	04/12/2021 15:30	Pirate Ship	255.0	0	40			
5	05/02/2020 13:15	Water Ride	247.0	0	15	225.0		345.0
6	13/05/2022 15:15	Flying Coaster	756.0	0	35	135.0		465.0
7	04/01/2020 10:00	Pirate Ship	221.0	0	50	420.0	120.0	720.0
8	03/10/2020 14:00	Water Ride	247.0	0	15			
9	26/06/2021 10:45	Flying Coaster	756.0	0	20			
10	11/11/2018 19:30	Flying Coaster	756.0	0	5	-150.0	-460.0	90.0
11	10/10/2018 14:15	Flying Coaster	756.0	0	25	195.0	-125.0	345.0
12	22/04/2019 19:15	Water Ride	247.0	0	20	-105.0		165.0
13	03/07/2019 11:45	Water Ride	247.0	0	20	345.0		675.0
14	07/10/2020 13:45	Flying Coaster	756.0	0	5			
15	17/07/2022 12:30	Water Ride	247.0	0	25	300.0		630.0
16	05/05/2022 16:45	Pirate Ship	306.0	0	35	45.0		375.0
17	08/03/2020 12:45	Water Ride	247.0	0	25	255.0		435.0
18	06/10/2018 16:30	Pirate Ship	280.5	0	70	60.0	-260.0	330.0
19	05/06/2022 15:00	Flying Coaster	756.0	0	50	150.0		480.0
20	29/09/2019 17:15	Flying Coaster	756.0	0	5	15.0	-285.0	225.0
21	06/09/2019 18:30	Flying Coaster	756.0	0	25	-60.0		150.0
22	20/06/2021 09:45	Water Ride	247.0	0	5			
23	01/03/2022 10:15	Pirate Ship	303.733	0	30			

One file for the validation step:

You can try as much as you want

One file for the final evaluation step:

One final prediction

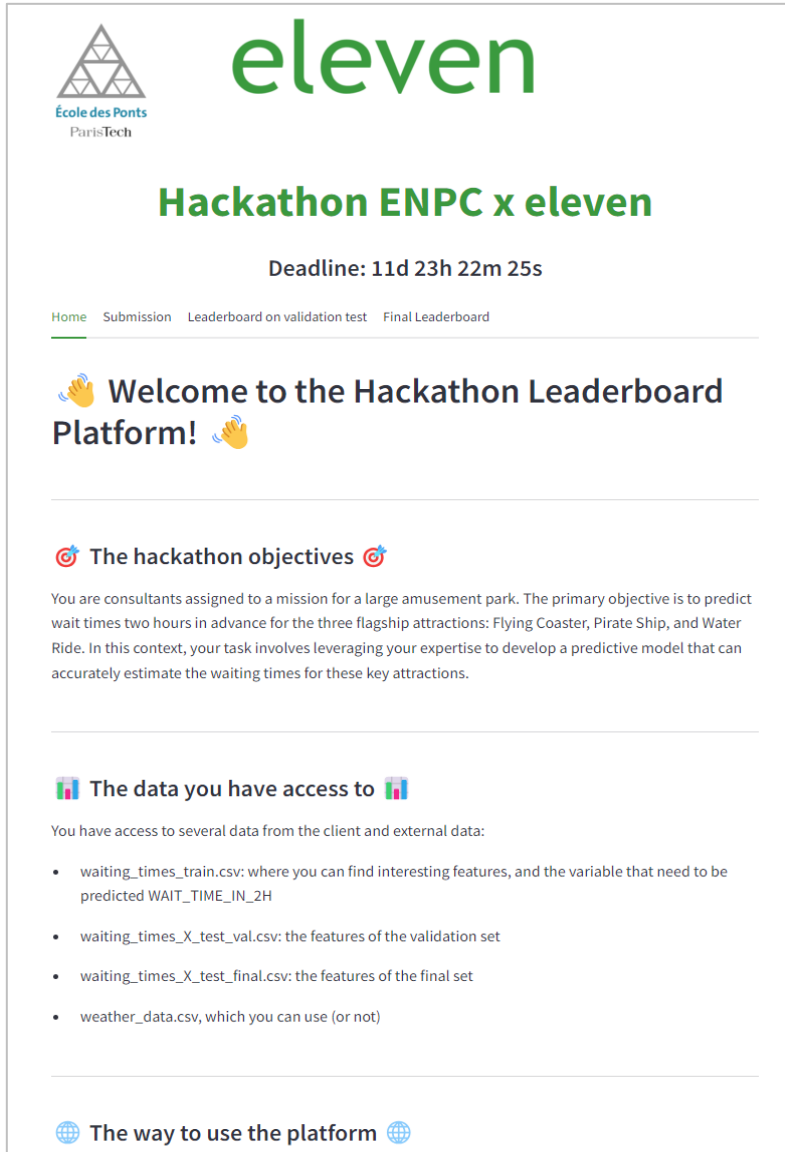


Data available: weather information are provided, for the past and future. It is up to you to use them or not


	A	B	C	D	E	F	G	H	I	J
1	temp	dew_point	feels_like	pressure	humidity	wind_speed	rain_1h	snow_1h	clouds_all	DATETIME
2	12.17	7.68	11.37	1019.0	74.0	3.3			100.0	01/10/2018 00:00
3	11.995000000000001	7.6075	11.192499999999999	1019.0	74.5	3.2624999999999997			99.25	01/10/2018 00:15
4	11.82	7.535	11.015	1019.0	75.0	3.2249999999999996			98.5	01/10/2018 00:30
5	11.645	7.4624999999999995	10.8375	1019.0	75.5	3.1875			97.75	01/10/2018 00:45
6	11.47	7.39	10.66	1019.0	76.0	3.15			97.0	01/10/2018 01:00
7	11.445	7.4624999999999995	10.645	1019.0	76.5	3.12			97.25	01/10/2018 01:15
8	11.42	7.535	10.629999999999999	1019.0	77.0	3.09			97.5	01/10/2018 01:30
9	11.395	7.6075	10.615	1019.0	77.5	3.0599999999999996			97.75	01/10/2018 01:45
10	11.37	7.68	10.6	1019.0	78.0	3.03			98.0	01/10/2018 02:00
11	11.23	7.635	10.459999999999999	1019.0	78.5	3.1025			96.5	01/10/2018 02:15
12	11.09	7.59	10.32	1019.0	79.0	3.175			95.0	01/10/2018 02:30
13	10.95	7.545	10.18	1019.0	79.5	3.2474999999999996			93.5	01/10/2018 02:45
14	10.81	7.5	10.04	1019.0	80.0	3.32			92.0	01/10/2018 03:00
15	10.9	7.5875	10.1375	1019.0	80.0	3.4025			88.25	01/10/2018 03:15
16	10.99	7.675	10.235	1019.0	80.0	3.485			84.5	01/10/2018 03:30
17	11.08	7.762499999999999	10.3325	1019.0	80.0	3.5675			80.75	01/10/2018 03:45
18	11.17	7.85	10.43	1019.0	80.0	3.65	0.15		77.0	01/10/2018 04:00
19	11.219999999999999	7.99	10.497499999999999	1019.0	80.5	3.8425	0.175		73.5	01/10/2018 04:15
20	11.27	8.129999999999999	10.565	1019.0	81.0	4.035	0.2		70.0	01/10/2018 04:30
21	11.32	8.27	10.6325	1019.0	81.5	4.2275	0.225		66.5	01/10/2018 04:45
22	11.37	8.41	10.7	1019.0	82.0	4.42	0.25		63.0	01/10/2018 05:00
23	11.295	8.3375	10.6175	1019.25	82.0	4.5375	0.24416666666666667		57.0	01/10/2018 05:15
24	11.219999999999999	8.265	10.535	1019.5	82.0	4.654999999999999	0.23833333333333334		51.0	01/10/2018 05:30
25	11.145	8.192499999999999	10.452499999999999	1019.75	82.0	4.7725	0.23249999999999998		45.0	01/10/2018 05:45
26	11.07	8.12	10.37	1020.0	82.0	4.89	0.22666666666666666		39.0	01/10/2018 06:00
27	10.785	7.704999999999999	9.657499999999999	1020.0	81.25	4.9025	0.22083333333333333		35.25	01/10/2018 06:15
28	10.5	7.289999999999999	8.945	1020.0	80.5	4.915	0.215		31.5	01/10/2018 06:30

You have access to weather information in the localisation of the park, actualized every 15 minutes

To assess your model's **performance** and **compare results between groups**, a leaderboard is available for the duration of the hackathon



The screenshot shows the homepage of the 'Hackathon ENPC x eleven' website. At the top left is the logo for 'École des Ponts ParisTech'. To its right is the word 'eleven' in a large green font. Below this, the title 'Hackathon ENPC x eleven' is displayed in green, followed by a countdown timer 'Deadline: 11d 23h 22m 25s'. A navigation bar contains links for 'Home', 'Submission', 'Leaderboard on validation test', and 'Final Leaderboard'. The main content area has three sections: 1) A welcome message 'Welcome to the Hackathon Leaderboard Platform!' with hand emojis. 2) A section titled 'The hackathon objectives' with a target icon, explaining the mission to predict wait times for three attractions. 3) A section titled 'The data you have access to' with a bar chart icon, listing four CSV files: 'waiting_times_train.csv', 'waiting_times_X_test_val.csv', 'waiting_times_X_test_final.csv', and 'weather_data.csv'. At the bottom is a section titled 'The way to use the platform' with a globe icon.



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Hackathon ENPC x eleven



Deadline: 11d 23h 22m 25s

[Home](#) [Submission](#) [Leaderboard on validation test](#) [Final Leaderboard](#)

👋 Welcome to the Hackathon Leaderboard Platform! 👋



 **The hackathon objectives** 

You are consultants assigned to a mission for a large amusement park. The primary objective is to predict wait times two hours in advance for the three flagship attractions: Flying Coaster, Pirate Ship, and Water Ride. In this context, your task involves leveraging your expertise to develop a predictive model that can accurately estimate the waiting times for these key attractions.

 **The data you have access to** 

You have access to several data from the client and external data:

- `waiting_times_train.csv`: where you can find interesting features, and the variable that need to be predicted `WAIT_TIME_IN_2H`
- `waiting_times_X_test_val.csv`: the features of the validation set
- `waiting_times_X_test_final.csv`: the features of the final set
- `weather_data.csv`, which you can use (or not)

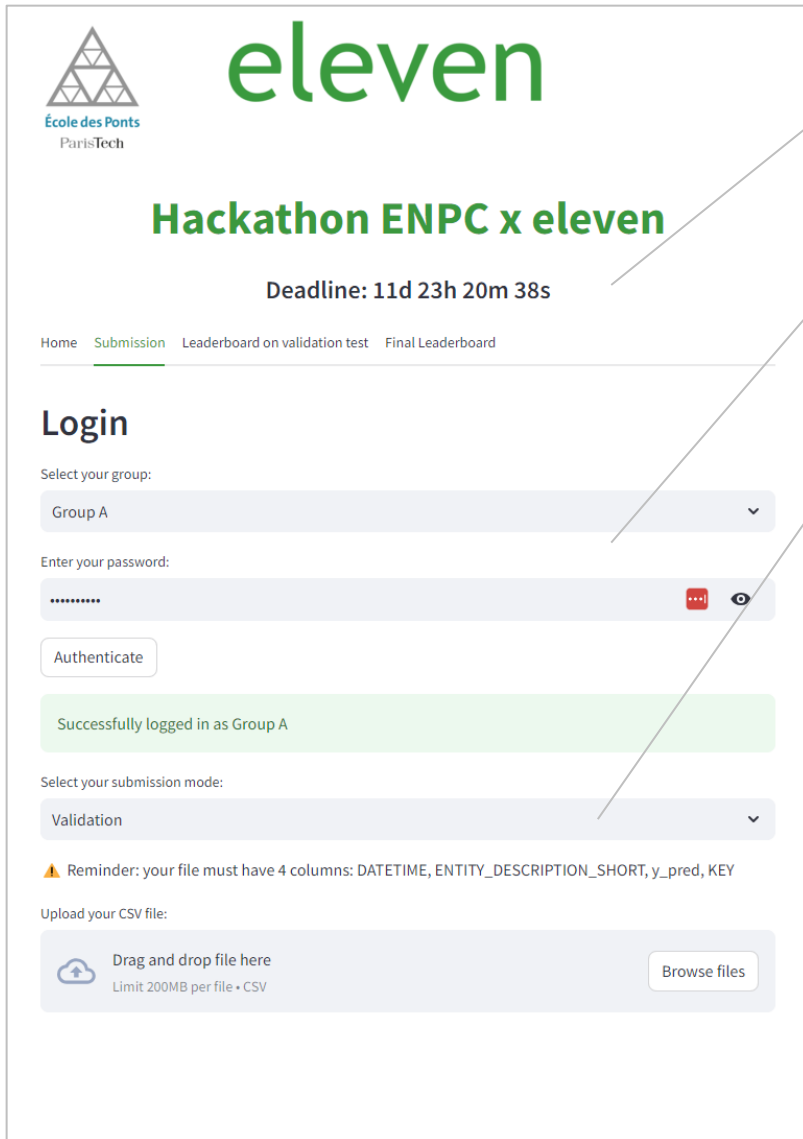
 **The way to use the platform** 

Welcome page, that restates the objectives & available data

Streamlit

huguescodroneleven-hackaton-enpc-theendles-streamlitmain-qklwc9.streamlit.app/

Each group will be provided a **password** to **submit its answer** during the hackathon, and for the **final submission**



The screenshot shows the 'Hackathon ENPC x eleven' interface. At the top, there's a logo for 'École des Ponts ParisTech' and the word 'eleven' in green. Below this, the title 'Hackathon ENPC x eleven' is displayed in green, followed by a deadline: 'Deadline: 11d 23h 20m 38s'. A navigation bar includes 'Home', 'Submission' (highlighted), 'Leaderboard on validation test', and 'Final Leaderboard'. The 'Login' section has a 'Select your group:' dropdown menu with 'Group A' selected. Below it is a password field with a red eye icon to toggle visibility. An 'Authenticate' button is present. A green message bar states 'Successfully logged in as Group A'. The 'Select your submission mode:' dropdown menu has 'Validation' selected. A reminder icon and text state: 'Reminder: your file must have 4 columns: DATETIME, ENTITY_DESCRIPTION_SHORT, y_pred, KEY'. At the bottom, there's a section for 'Upload your CSV file:' with a 'Drag and drop file here' area (noting a 200MB limit per file and CSV format) and a 'Browse files' button.

Check the time left for the hackathon

Authenticate using the provided login and password

Select the type of submission (“Validation” to test your algorithms,
“Final” for final predictions on the hidden set)

	A	B	C	D	E
1	DATETIME,ENTITY_DESCRIPTION_SHORT,y_pred,KEY				
2	2019-11-23 10:45:00,Water Ride,150000.0,Validation				
3	2022-01-03 16:45:00,Pirate Ship,150000.0,Validation				
4	2021-12-04 15:30:00,Pirate Ship,150000.0,Validation				

Submissions are expected to be under commas separated .csv format, with four columns DATETIME, ENTITY_DESCRIPTION_SHORT and y_pred, and KEY as shown

KEY value for the final submission will be provided on Wednesday afternoon. Be careful, **only one try is allowed!**

Each group will be provided a **password** to **submit its answer** during the hackathon, and for the **final submission**



eleven

Hackathon ENPC x eleven

Deadline: 11d 23h 20m 38s

[Home](#) [Submission](#) [Leaderboard on validation test](#) [Final Leaderboard](#)

Leaderboard

	Groups	Number of tries	Last try datetime	Last try score	Score Validation Dataset - RMSE
0	Group A	0	-	-	-
1	Group B	0	-	-	-
2	Group C	0	-	-	-

Groupe name

Number of tries that were made by your team

Datetime of you last attempt

Score of you last attempt

Your best attempt so far

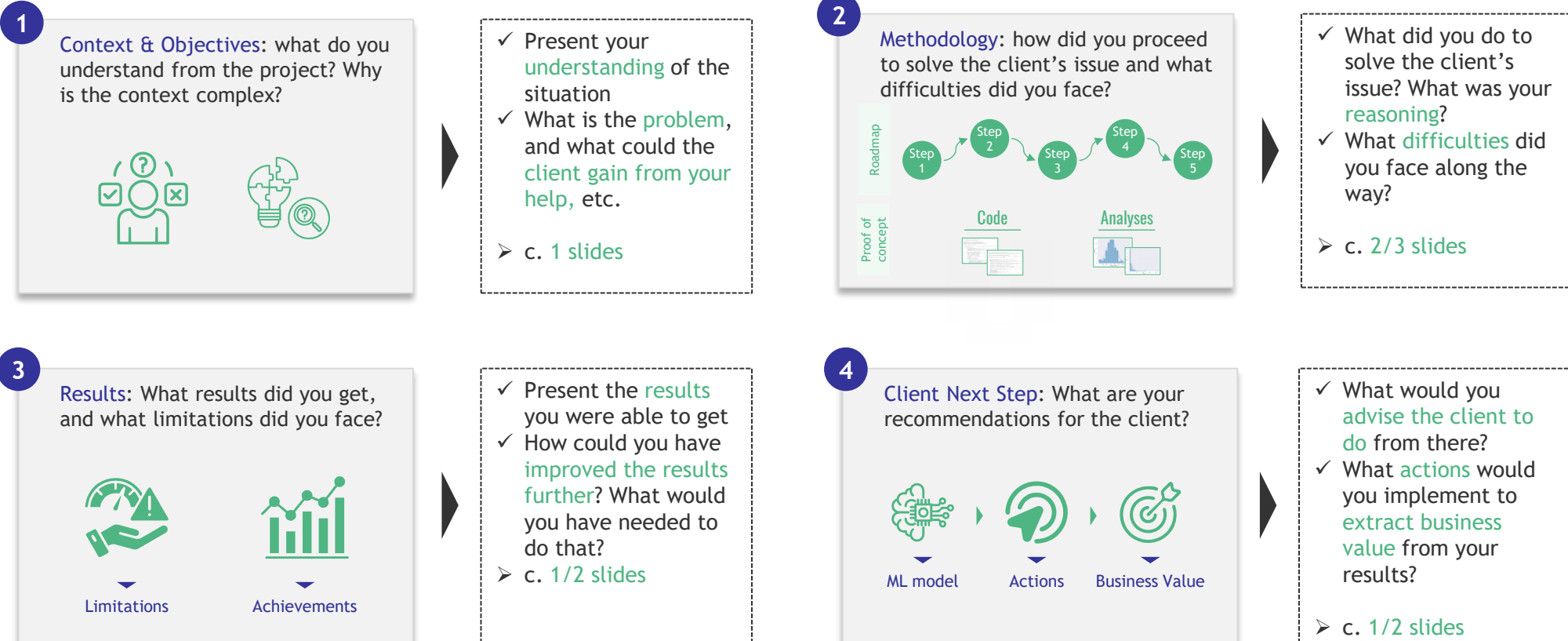
The chosen metric is the **Root Mean Squared Error (RMSE)** of your predictions

Expected Output

Expected output: how should you structure your presentation

You are expected to deliver the following:

- Your **code used to solve the use case**, including **any relevant dashboard**, data analysis, model training, etc. This code **should be readable** by anyone, with a clear *Readme*, *requirements*, etc.
- A “client-ready” **PowerPoint presentation** of your work, structured as follows:



Final presentation details and best practices

On **Friday 12nd**, you will have to present your work in front of one of three **juries**

The modalities of the presentation will be as follow:

- **10min group pitch** based on a PowerPoint presentation
- **~5min Q&A session** with the jury

After deliberation, each jury will elect a winner in their group, and then a winner overall

The presentation must be **as professional as possible**. Here are some advices and best practices that may be useful:



- **Structure your presentation**: start by stating the problem that you want to solve, then present the way you tackled it, and finally describe your solution. The “story” of the presentation should be natural and easy to follow
- **Be concise and precise**: focus on the most important messages, as you only have 10 minutes to present the work achieved. You should limit the number of slides you present (you can still add appendices if needed)
- **Be organized as a team**: split up the speaking time between the team members beforehand to make it smoother
- **Be honest**: tell where you encountered issues or challenges

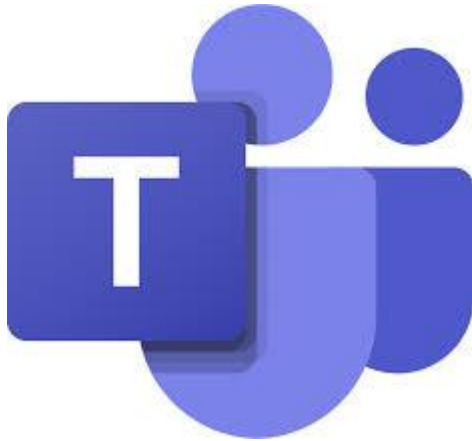
Practical Information

A slack canal has been created for you to ask your questions asynchronously



https://join.slack.com/t/elevenxenpc/shared_invite/zt-3cy7ppuna-bzvHHY78CDeB6hvubPziWQ

A Teams meeting will be held daily to answer your questions live



Teams Schedule:

Tuesday: 17h-18h

Wednesday: 14h-15h

Thursday: 14h-15h

Link:

[Join the meeting now](#)

Meeting ID: 366 102 956 972 9

Passcode: Fm6A8Gc3

Evaluation Criteria

Topic		Description	Contribution to the final grade*
Business aspect	Engagement	The engagement of the team during the exercise (how far you've gone, how autonomous you have been, how much you have asked questions when stuck, etc.)	2 points
	Presentation quality	The quality of your final presentation : how professional it looks (slide quality), how clear and complete it is (storytelling), how pertinent your answers are, etc.	3 points
	Business methodology	The creativity and relevance of the methodology (i.e., scientific approach) you choose regarding the problem you try to solve, and the data provided, the business sense behind your methodology and the pragmatism of your presentation	6 points
	Technical choices	The explanation of your technical choices and your ability to present them in non-technical terms	4 points
Technical aspect	Model efficiency or Analysis relevance	The performance of your model (specific to each case), the relevance for the problem in question , the quality of the analysis led	5 points

Please note that all groups will be graded at the end of the week

Enjoy the challenge!