

Travel to Japan

Introduction

Goal

Finding the best month to visit Japan. The solution should be tailored for a specific persona and include factors such as flight prices, weather, number of the visitors and available events.

Persona

First time visitor, that is interested in getting to know the Japanese culture and see the main highlights.

The scope of work

Analysis has included factors like weather, costs of the flights, number of the visitors and festivals. Firstly, the data was gathered, cleaned and imported to the database. After that, the analysis took place and finally, the report, consisting the plots, tables and conclusions was created.

Methodology

Data sources

- Weather: Open-meteo
- Flights: Amadeus API
- Visitors: JNTO
- Festivals: Various sources, gathered manually and mentioned in the dataset, highly influential were japantravel.navitime.com and kanpai-japan.cm

The data sets were cleaned, the data types normalized and columns prepared for the export to match the database.

Database

Database is using the one-schema approach due to the low complicity of the project and higher comfort when writing queries. Four tables were defined and used in the project – festivals, flights, visitors and weather_data.

Scoring approach

The score is using the weighted approach, making it more flexible and allowing to prioritize some factors over the others. For each factor, the normalized score in the value between 0-1 was counted, where 1 stands for the highest score and 0 – the lowest score.

Partial scores

1) Weather score

Weather score includes factors such as temperature, rain, snowfall, sunshine duration and relative humidity. The best weather score is defined as:

- optimal temperature = 22°C,

the temperature score is counted with the deviation of 15°C, which gives the comfortable range 7°C - 37°C. 22°C gives the best temperature score = 1, 7°C or lower and 22°C and higher gives the score = 0. The temperatures between the comfortable range are counted accordingly.

- low rain,

- low snowfall,

- high sunshine duration,

- humidity = 50% is considered ideal, the more further away, the score drops, the score = 0 would be the most further value for a specific month in a year.

2) Flight score

The lower average flight price in a specific month from all the major European flight hubs, the higher the score. The score for each month was counted as the proportion of the average price of the flight in the specific month to the maximum price from all months.

Origin – Frankfurt Airport (FRA), Paris Airport (PAR), Madrid-Barajas Airport (MAD), Amsterdam Airport Schiphol (AMS), London Airports (LON) – Heathrow (LHR), Gatwick (LGW), Stansted (STN), Luton (LTN), City (LCY), and Southend (SEN).

Destination – Tokyo Airports (TYO) – Haneda International Airport (HND) and Narita International Airport (NRT) .

3) Visitors score

The score is counted as the proportion of average monthly visits in the major cities to the maximum monthly visits of all months. The more visitors each month, the lower the score.

4) Festival score

For the first-time visitors, special types of the festivals were chosen to be in their interest. Each of them were given the weight adjustment

cherry blossom – weight 0.30

cultural festival or obon – weight 0.20

nature festival – weight 0.10

seasonal event – weight 0.10

dance festival – weight 0.10

fire festival – weight 0.10

firework display – weight 0.05

The score was counted as the proportion of the sum of the weights for specific festivals for each month to the maximum result of all months.

Total score

weather_score – weight 0.4

flight_score – weight 0.2

festival_score – weight 0.2

visitors_score – weight 0.2

$$\text{total_score} = \text{weather_score} * 0.4 + \text{flight_score} * 0.2 + \text{festival_score} * 0.2 + \text{visitors_score} * 0.2$$

Total score was rounded to three decimal places.

Results

Tables

1) Scores summary

The partial and composite score for each months in the values between 0-1, where 1 means the highest score.

month_name	total_score	weather_score	flight_score	visitors_score	festival_score
October	0.670	0.69	0.86	0.11	1.00
August	0.610	0.70	0.62	0.35	0.68
April	0.598	0.66	0.70	0.00	0.97
September	0.592	0.72	0.85	0.22	0.45
March	0.582	0.55	0.83	0.08	0.90
February	0.572	0.51	0.83	0.07	0.94
July	0.564	0.69	0.62	0.27	0.55
May	0.536	0.70	0.64	0.03	0.61
June	0.534	0.74	0.63	0.11	0.45
November	0.522	0.61	0.84	0.10	0.45
December	0.454	0.54	0.83	0.07	0.29
January	0.398	0.50	0.85	0.14	0.00

2) Festival count

The number of the festivals of each type in each month.

month_name	anime_culture	dance_festival	fire_festival	technology_festival	nature_festival
January	1	0	0	0	0
February	0	0	3	0	0
March	1	1	2	0	1
April	1	0	0	0	3
May	2	0	0	0	1
June	0	1	0	0	0
July	0	0	0	0	0
August	1	3	1	0	0
September	0	0	0	1	1
October	2	0	0	1	1
November	0	1	0	1	0
December	1	0	0	0	0

month_name	fireworks	sport_activity	cultural_festival	sakura	snow_festival	music_festival
January	0	0	0	1	0	0
February	0	0	0	1	3	0
March	0	0	0	2	3	0
April	0	0	0	3	2	0
May	1	0	0	4	0	0
June	0	0	0	3	0	0
July	1	1	1	4	0	0
August	0	1	1	3	0	0
September	0	0	0	3	0	0
October	1	0	0	7	0	0
November	0	0	0	3	0	0
December	1	0	0	2	0	0

3) Best months festivals

A list of the festivals in the top months.

month_range	type	name	location
February - March	Sakura	Plum Blossom Festival / Yushima Tenjin Ume Matsuri	Tokyo
February - March	Sakura	Miura Kaigan Cherry Blossom Festival	Kanagawa
March - April	Nature festival	Flower festival	Tokyo
March	Fire festival	Mt. Takao Fire Walking Festival / Hiwatari-sai	Tokyo
March	Fire festival	Water-drawing Ceremony / Omizutori (Shunie)	Nara
March - April	Sakura	Nijo Castle Cherry Blossom Festival	Kyoto
March	Dance festival	Golden Dragon Dance/ Kinryu no Mai	Tokyo
April	Cultural festival	Penis Festival / Kanamara Matsuri	Kanagawa
April	Cultural festival	Kinosaki Onsen Festival	Hyogo
April	Sakura	Cherry Blossom Viewing Procession / Toyotomi Hideyoshi's	Kyoto
April	Cultural festival	The Spring Takayama Festival / Sanno Matsuri	Takayama
April - May	Nature festival	Tonami Tulip Fair	Toyama
April	Nature festival	Bunkyo Azalea Festival / Tsutsuji Matsuri	Tokyo
July - August	Cultural festival	Sumiyoshi Festival	Osaka
August	Cultural festival	Nebuta Festival / Aomori Nebuta Matsuri	Aomori
August	Dance festival	Awa Odori Dance Festival	Tokushima
August	Dance festival	Awa Odori Festival	Tokushima, Shikoku
August	Fire festival	Gozan Okuribi Ritual Fires	Kyoto
August	Dance festival	Koenji Awa Odori Dance Festival	Tokyo
August	Cultural festival	Akita Kanto Festival	Akita
September	Cultural festival	Akasaka Hikawa Festival	Tokyo
September - October	Nature festival	Red Spider Lily Festival / Kinchakuda	Saitama
September - October	Cultural festival	Kishiwada Danjiri Matsuri Festival	Osaka
September	Cultural festival	Konno Hachimangu Shrine Grand Festival	Tokyo
October	Cultural festival	Nagasaki Kunchi Festival	Nagasaki
October	Cultural festival	Jidai Matsuri Festival	Kyoto
October	Fireworks display	Setagaya Tamagawa Fireworks Display	Tokyo
October	Cultural festival	Kawagoe Festival	Kanagawa
October	Cultural festival	Festival of Ages / Jidai Matsuri	Kyoto
October	Cultural festival	Fighting Festival / Nada no Kenka Matsuri	Hyogo
October	Cultural festival	The Autumn Takayama Festival / Hachiman Matsuri	Takayama

4) Best months temperature and flight costs

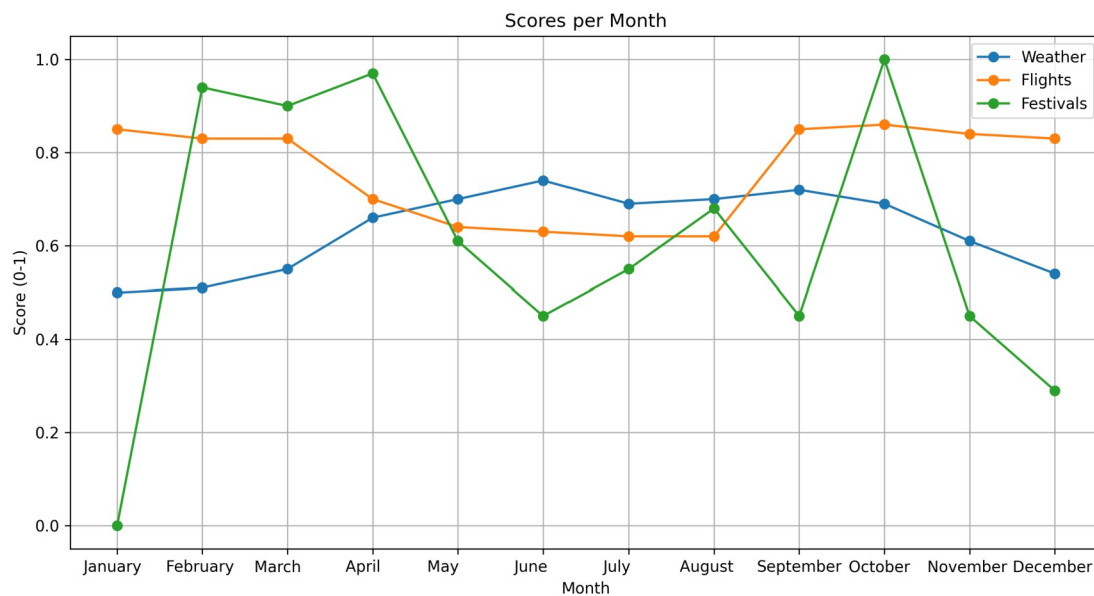
The average temperature and flight cost in the top months.

month	average_temperature	average_flight_cost
April	14.70	760.79
August	27.83	973.84
March	6.04	430.17
October	18.65	362.16
September	25.05	377.33

Plots

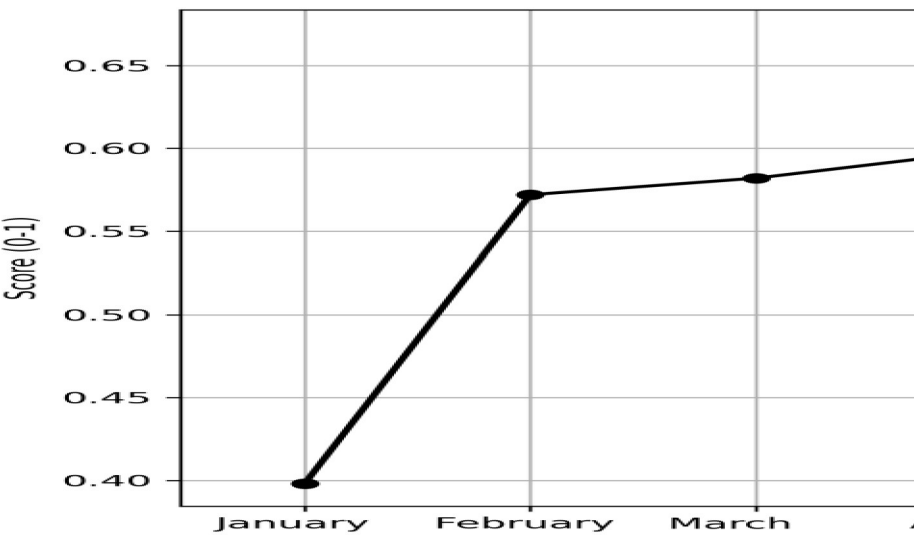
1) Partial scores per month

The plot represents the high and low season, which can be observed by watching the flight costs and the weather conditions. However, it doesn't align with the festival score.

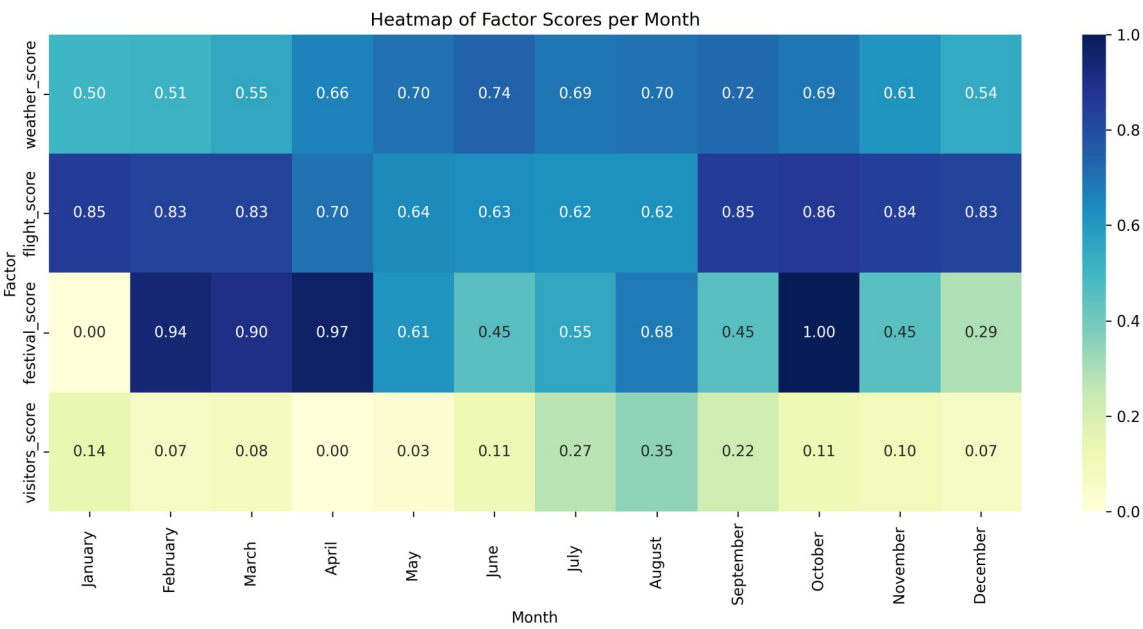


2) Total score per moth

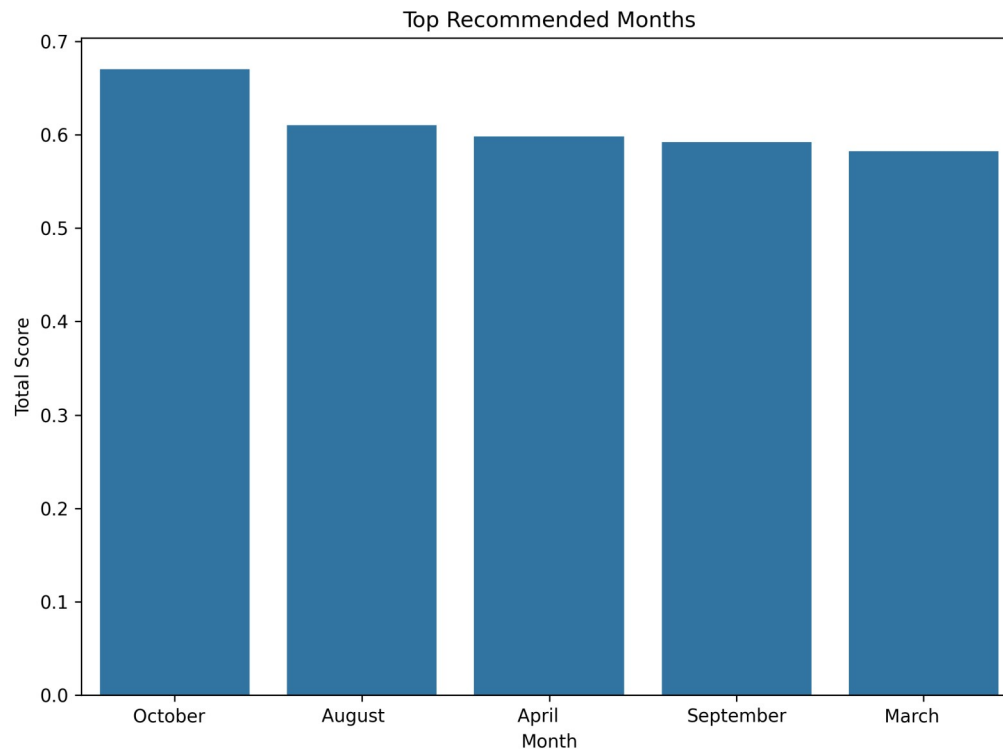
A graphic summary indicating the main results and the months with the highest scores.



3) Heatmap comparing factors by month



5) Top-scoring months



Insights & Recommendations

Summary of the most optimal months

The most optimal months are October, August, April, September and March.

Trade-offs

- **October** is the month that balances everything – it has received one of the 4 best scores for festivals, in this month 7 cultural festivals take place and few of other types (including the Fireworks Display in Tokyo). The average temperature is the most pleasant. It's also considered out of season, which results as relatively cheaper flight costs
- **August** is a month that has received a decent festivals score. In comparison to October, it has more dance and fire festivals, such as Gozan Okuribi Ritual Fires and Awa Odori. Unfortunately it's still in the high holiday season, so the flight cost can be higher, the weather is pleasant, but relatively hot (28 Celcius degrees).
- **April** is the best month for spotting Cherry Blossom, which is considered as one of the main Japanese attractions, unfortunately this comes with more visitors and higher flight costs, what has affected it's final score

- Both **September** and **March** and the off season months, the first one is winning in temperature score, but has only 2 major festivals, the second is the opposite – top 4 best festival score, but relatively low temperature. The extra points for March are for the early cherry blossom period.

Advice for Persona

The most optimal: October appears to be the best choice, however what's missing there is the cherry blossom. In case of the more interest in the festivals of dance and fire above the cultural type of the festivals and willingness to pay more for the flight, August is recommended.

Cherry blossom priority: April is definitely a classic period for the first visit, but that means more crowds and higher prices of the flights. I'd suggest taking a closer look on March, which could be another interesting choice, but risky in terms of arriving too early for the cherry blossom.

Conclusion and next steps

- Recommended month for the first visit in Japan is October, due to the offered festivals and optimal conditions. When prioritizing the cherry blossom period – March.
- More detailed information about the cherry blossom dates should be gathered and analyzed, to predict better if March can be indeed the month when cherry blossom trees can be spotted. If the results are negative, the recommended month should be April instead.
- The research could be expanded by adding the monthly costs of hotels, hostels and airbnb, unfortunately for the time being, the appropriate data wasn't possible to be gathered yet.
- The scores can be in the future adjusted for a different types of the personas, such as sport enthusiasts and anime fans. Since the first time visitor appeared to be the most classic visitor, it was given the priority in the research.