

# PROJECT RYVER BANK TEAM 10

```
[INFO] Results:  
[INFO]  
[INFO] Tests run: 28, Failures: 0, Errors: 0, Skipped: 0  
[INFO]  
[INFO] -----  
[INFO] BUILD SUCCESS  
[INFO] -----  
[INFO] Total time: 14.297 s  
[INFO] Finished at: 2020-11-03T02:36:12+08:00  
[INFO] -----
```

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Architecture Overview

## JSON WEB TOKENS

Beyond Basic Authentication

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Scraping SGX STI with Selenium Java

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# **WHY MICROSERVICES?**

# MICROSERVICE ARCHITECTURE

## SEPARATION BETWEEN MODULES

- Improves maintainability of codebase
- Codebase for each service is smaller and more digestible - easier for developers to understand
- Able to test each service individually

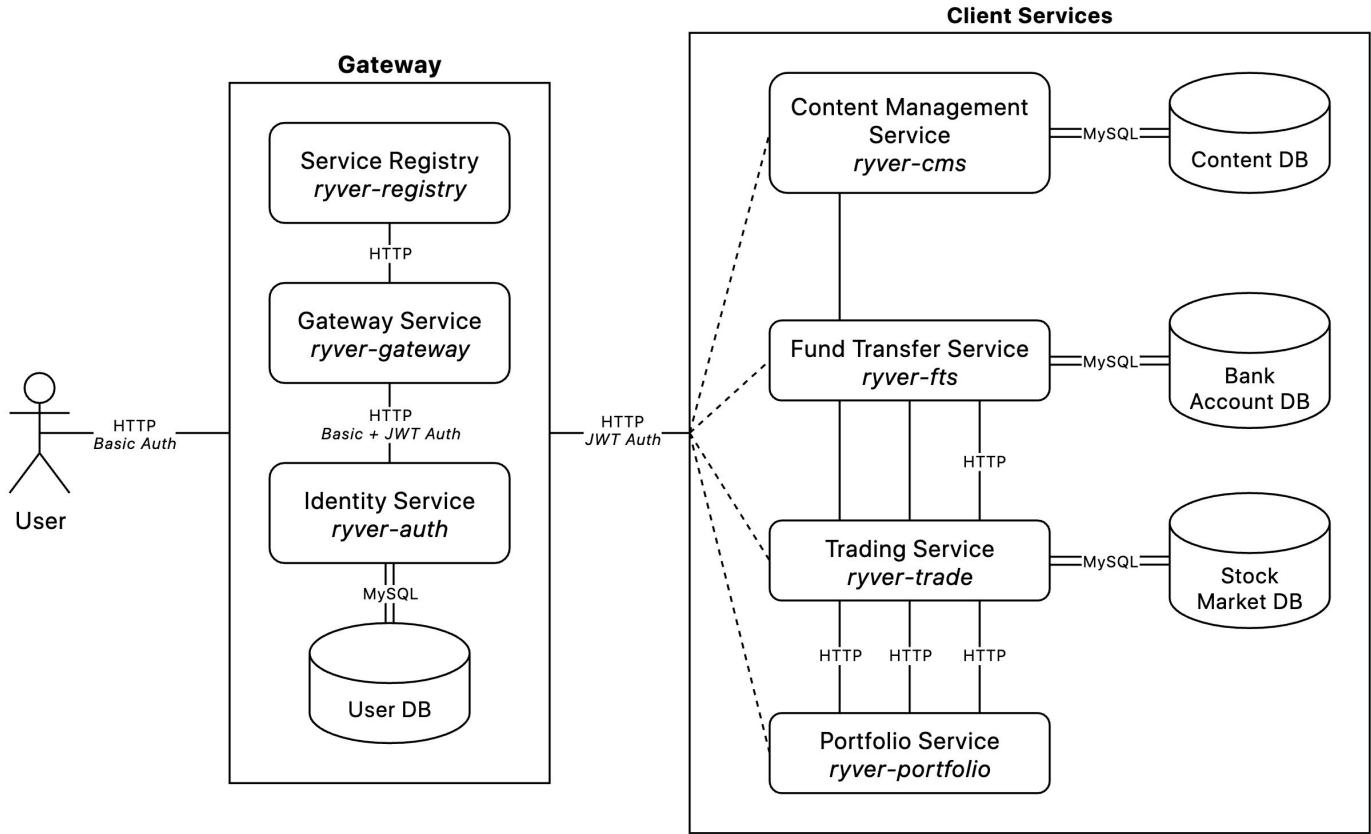


## SEMI-INDEPENDENT SERVICES

- If one service goes offline, it does not affect the availability of other services
- Each service can be easily redeployed in a modular fashion by a containerization service
- Individual services can be scaled up according to usage, and can be horizontally scaled by adding more instances



# MICROSERVICE ARCHITECTURE



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# JSON WEB TOKEN

To take advantage of a microservice architecture, we identified several key technical requirements.

- A token-based authentication architecture to minimise callbacks to the authentication service.
- A service registry architecture to coordinate the multiple services and instances.

Based on the project requirements, our team decided to use a proxy to route incoming client requests to the appropriate service and transform Basic Authorization requests to use Bearer JWT tokens internally.

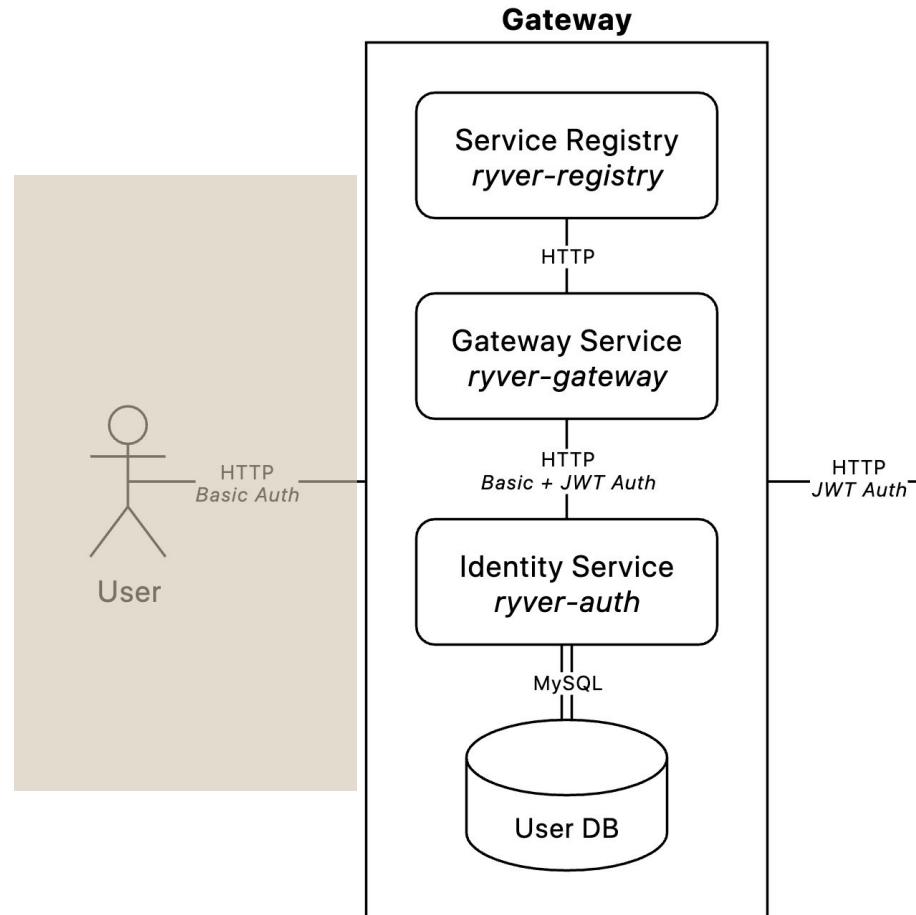
```
{  
  "sub": "manager_1",  
  "uid": 1,  
  "auth": "ROLE_MANAGER",  
  "exp": 1601958943  
}
```

# PROXY SERVICE

The client will access the API through a proxy, which is built upon three main components.

- Registry: Coordinates all client services in the system
- Auth: Stores user information & credentials. This allows authentication of incoming requests and checks user authorities
- Gateway: Handles Actual Routing of incoming client requests. This service communicates with Registry & Auth service to transform Basic Authorization requests into Bearer JWT Token Requests.

JWT Tokens are then parsed to the respectively services.



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# Stock Exchange

Home > Indices

## Straits Times Index (STI)

### Prices & Chart

Straits Times Index (STI)

▲ 2,825.63

( +0.12/0%)

Inception Date	12 Feb 1987
Base Value	42.000
Open	2,820.990
Prev Close	2,825.510
52 Week High	3,283.890
52 Week Low	2,208.420

## Web Crawling Service

Uses Selenium Java to load and crawl the website via a headless Chrome browser.

## Pre-loaded CSV

Since we recognise that site crawling is prone to breaking, we also used a pre-loaded CSV as back-up.

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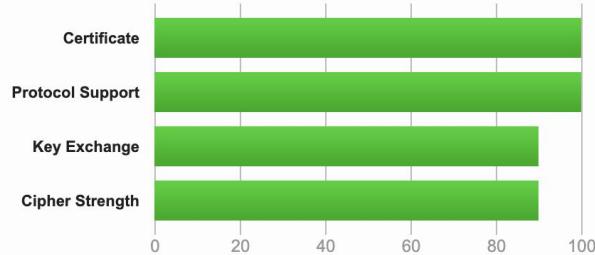
## SSL Report: www.ryver.life (54.255.146.38)

Assessed on: Tue, 03 Nov 2020 06:14:09 UTC | [Clear cache](#)

[Scan Another »](#)

### Summary

Overall Rating



Visit our [documentation page](#) for more information, configuration guides, and books. Known issues are documented [here](#).

This site works only in browsers with SNI support.

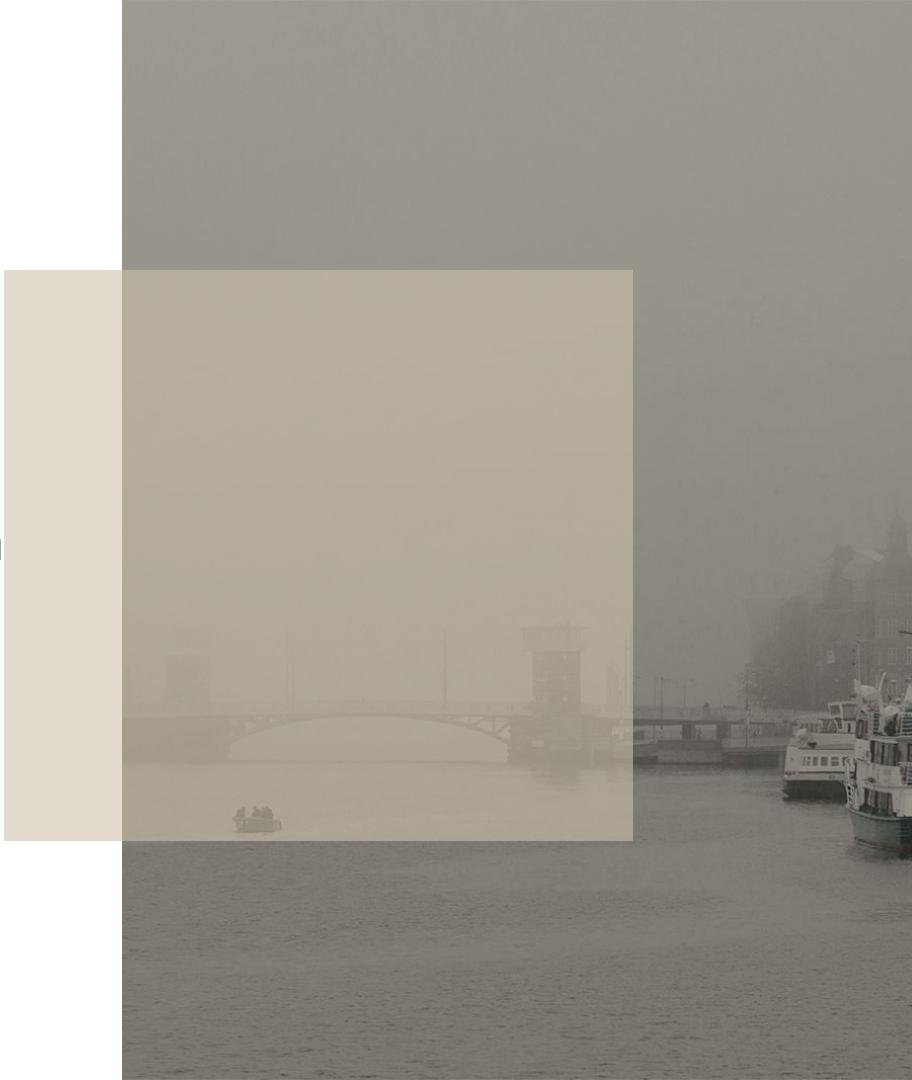
# HTTPS

To receive an A rating for our SSL report, we had to ensure a few requirements:

1. Our certificates are strongly encrypted, trusted, and transparent.
2. HTTP requests are redirected to HTTPS.
3. We implemented support for TLS 1.2 with Secure Renegotiation and Forward Secrecy.

Hosted an Apache service, which acts as a proxy for our main Ryver API.

1. Separate our transport security and application concerns
2. Faster development of our application without worrying about handling SSL
3. Benefit from first-class security support



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# Methodology

1. A customer's portfolio can be used as an indicator for the type of articles they would be interested in
2. Associate the types of stocks owned to the type of articles normally viewed



# Implementation



## Classify articles by their related stock option

Use a CountVectorizer to represent articles and a Logistic Regression model to classify articles probabilistically with a one-vs-rest scheme.

- *An artificial data set was used to train the model as a proof-of-concept.*

## Integrate the recommendation microservice into the suite

Register the new microservice into the service registry.

- Use the registry to interact with other necessary services for customer information.

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# Handling complexity...

## In after-hour trading

Custom internal state tracks additional data required for after-hour trades without exposing to client.

Ensured atomicity of reconciliation via transactions.

Cron expressions and scheduling to manage opening and closing of market

## In the complex market

Database: Handles data processing and filtering of best market or limit trade

Application: Handles complex market matching logic

## In managing traffic

Gateway: handles external incoming requests and authentication

Internal market services: directly communicate with each other through a discovery client

## In testing

Market reconciliation is complex.

Noteworthy corner cases include partial-filled trading, after-hours trade matching and appropriate stock-record updating.



"For our Ryver Bank employees, we also have a plan for the Ryver Bank. We have a Ryver Bank, we have a together and Ryver Bank plan. We care at the Ryver Bank,"

**—WYDE HARPER**



FUTURE

# RYVER BANK

## TEAM 10



# MAJOR REQUIREMENTS

TO 

# MAJOR REQUIREMENTS



## MARS

Despite being red, Mars is a cold place, not hot. It's full of iron oxide dust



## JUPITER

It's a gas giant, the biggest planet in our Solar System and the fourth-brightest object in the sky



## SATURN

Yes, this is the ringed one. It's a gas giant, composed of hydrogen and helium



## MERCURY

Mercury is actually the smallest planet in our Solar System



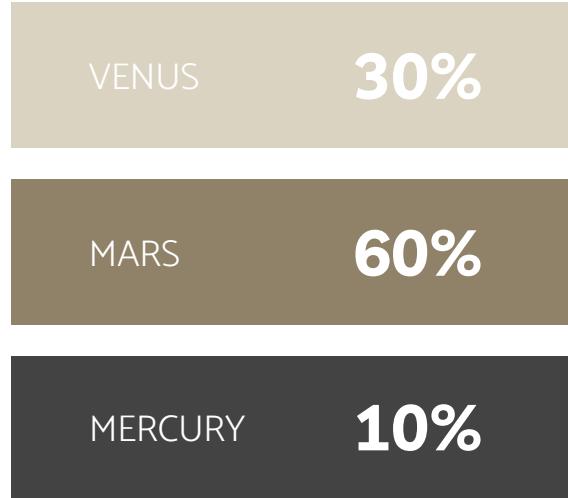
## NEPTUNE

Neptune is the fourth-largest planet in our Solar System and the farthest from the Sun

## VENUS

Venus has a beautiful name and is the second planet from the Sun. It's terribly hot

# BUDGET



If you want to modify this graph, click on it, follow the link,  
change the data and replace it

# OUR NUMBERS

**\$50,000,000**

REVENUE LAST YEAR

**2,000**

NEW CLIENTS LAST YEAR

**75**

EMPLOYEES

# PROJECT GOALS



## GOAL 1

Mercury is the closest planet to the Sun and the smallest one in the Solar System—it's only a bit larger than our Moon

## GOAL 2

Venus has a beautiful name and is the second planet from the Sun. It's terribly hot, even hotter than Mercury

# PREDICTED RESULTS

	VENUS	MARS	MERCURY	JUPITER
AREA 1	50	100	20	30
AREA 2	23	34	45	56
AREA 3	234	45	65	56

# SNEAK PEEK



Mercury is the closest planet to the Sun and the smallest one in the Solar System—it's only a bit larger than our Moon. The planet's name has nothing to do with the liquid metal, since it was named after the Roman messenger god, Mercury

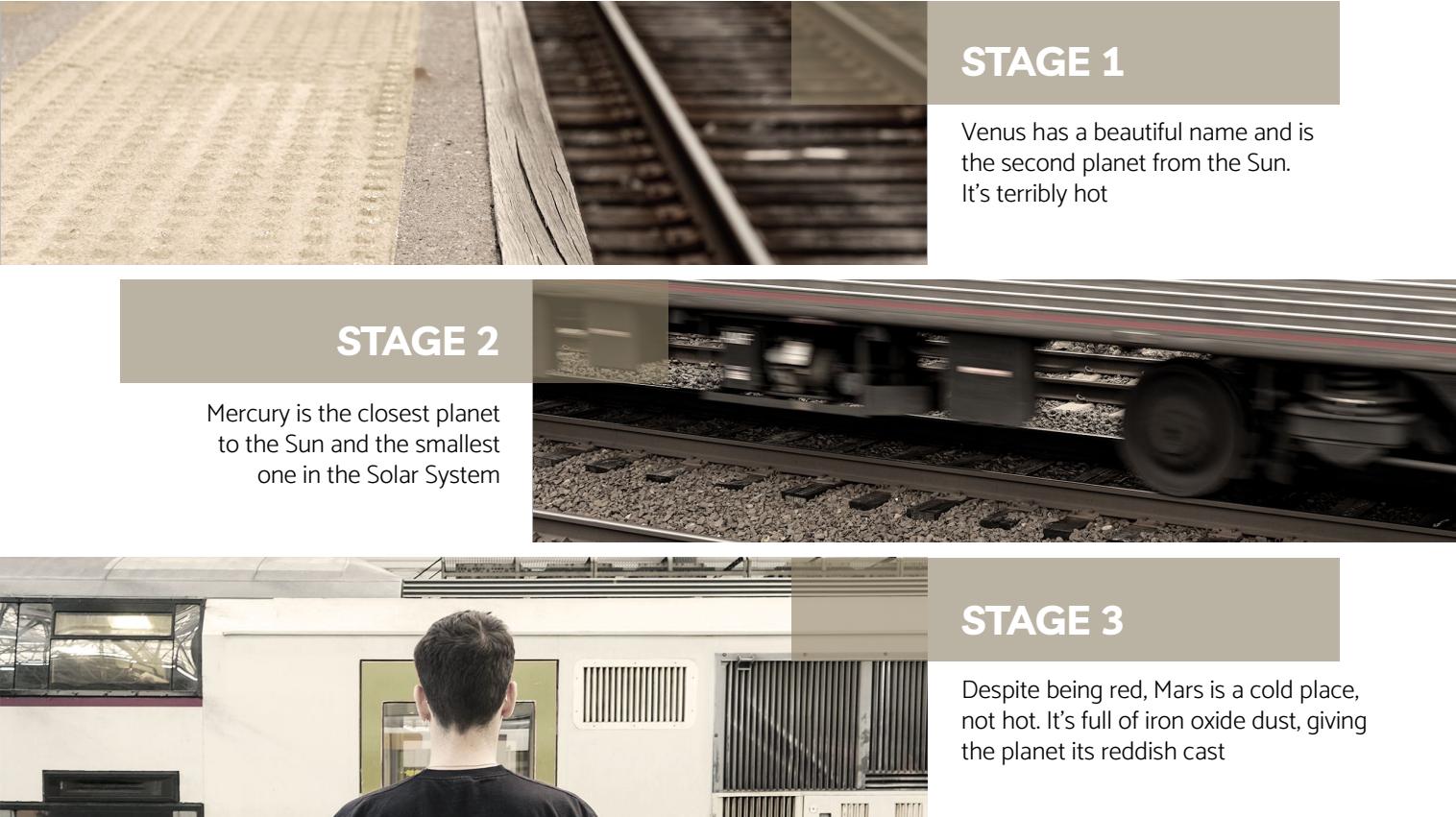
# SNEAK PEEK



Insert your  
multimedia  
content here



# PROJECT STAGES



## STAGE 1

Venus has a beautiful name and is the second planet from the Sun. It's terribly hot

## STAGE 2

Mercury is the closest planet to the Sun and the smallest one in the Solar System

## STAGE 3

Despite being red, Mars is a cold place, not hot. It's full of iron oxide dust, giving the planet its reddish cast

# FUTURE PROJECTS

## MERCURY

Mercury is the closest planet to the Sun and the smallest one in the Solar System

## MARS

Despite being red, Mars is a cold place, not hot. It's full of iron oxide dust



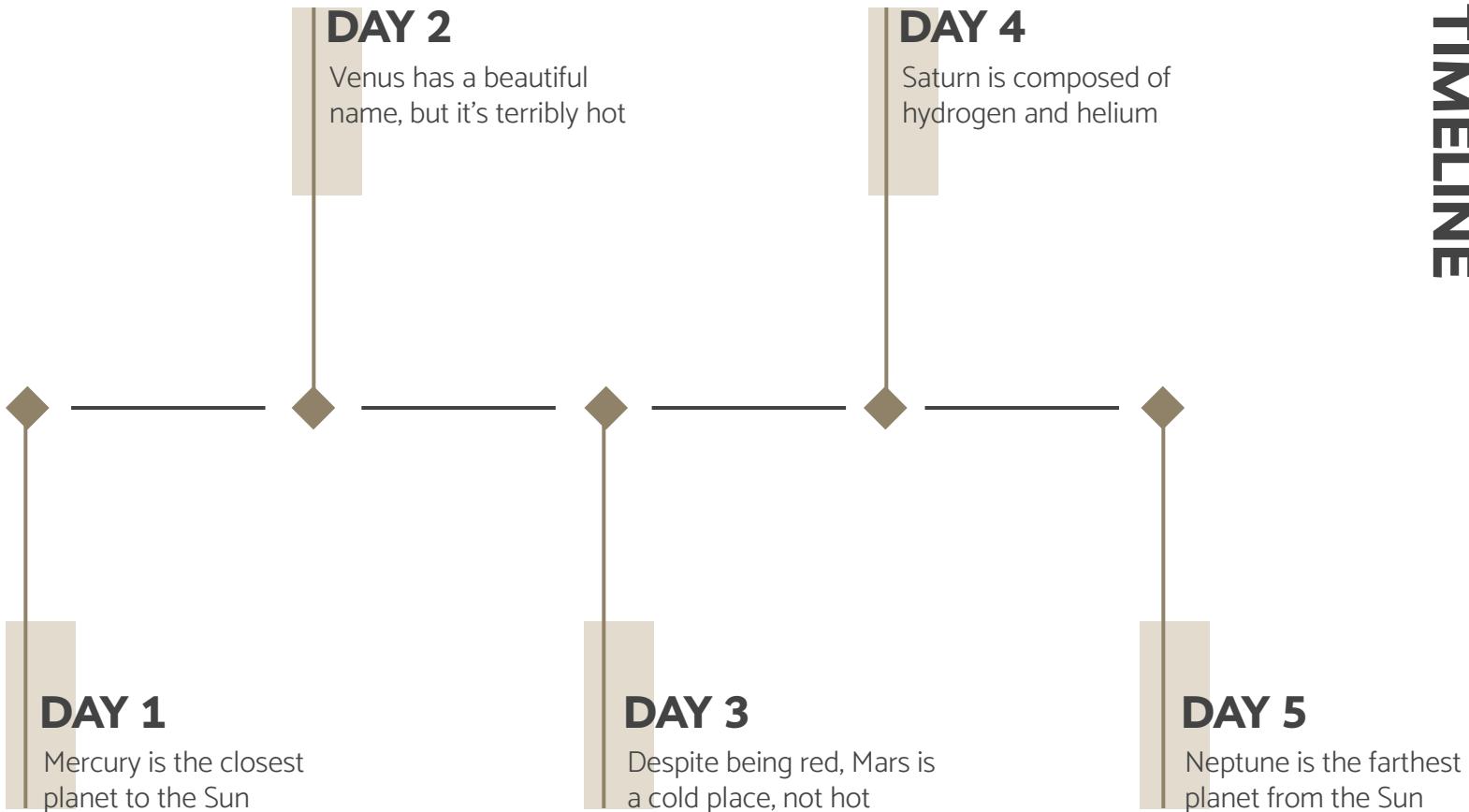
Venus has a beautiful name and is the second planet from the Sun

## VENUS

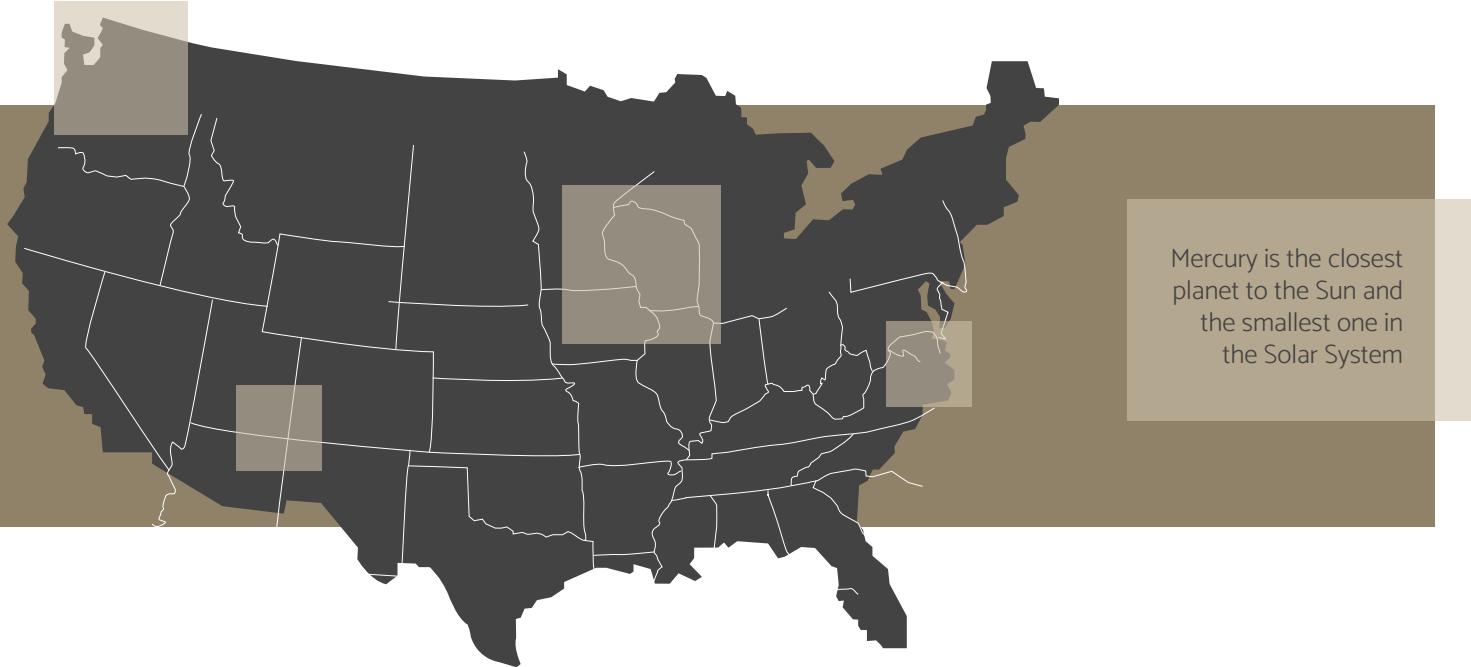
Saturn is the ringed planet. It's a gas giant, composed mostly of hydrogen and helium

## SATURN

# TIMELINE



# OUR LOCATIONS



Mercury is the closest planet to the Sun and the smallest one in the Solar System

# OUR PARTNERS



## MERCURY

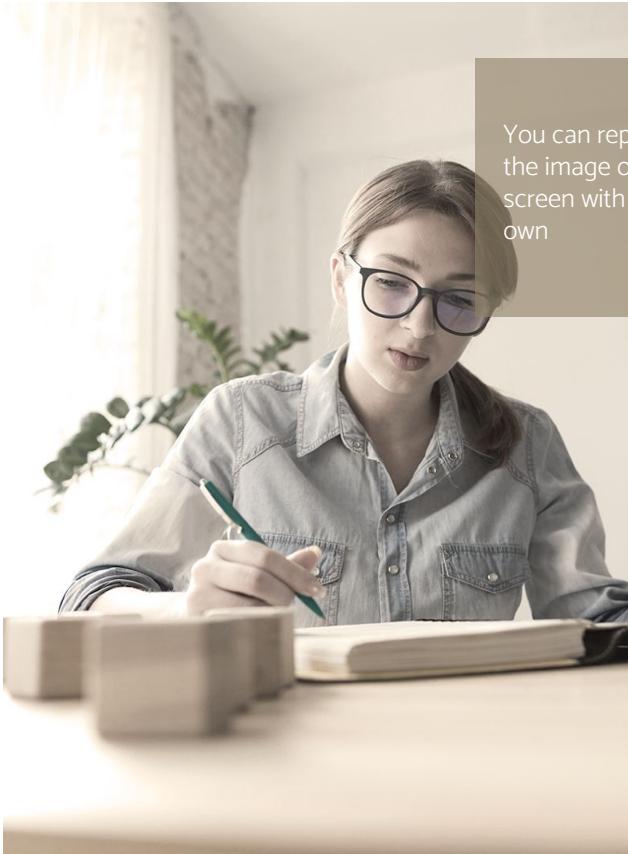
Mercury is the closest planet to the Sun and the smallest one in our Solar System—it's only a bit larger than our Moon. The planet's name has nothing to do with the liquid metal, since it was named after the Roman messenger god

## VENUS



Venus has a beautiful name and is the second planet from the Sun. It's terribly hot—even hotter than Mercury—and its atmosphere is extremely poisonous. It's the second-brightest natural object in the night sky

# OUR TEAM



You can replace  
the image on the  
screen with your  
own



You can replace  
the image on the  
screen with your  
own

# THANKS

Does anyone have any questions?  
Follow the project updates

addyouremail@freepik.com  
+91 620 421 838  
yourcompany.com



# ALTERNATIVE RESOURCES

Here's an assortment of alternative pictures within the same style of this template.

- Airplane window with sky and sea landscape
- Railway train station long shot
- One way road sign in the city
- Sunset at bay
- Old foot bridge over the river near alesund; norway
- Tropical road with desert background
- Modern woman riding bike in city
- Harbor with boats and blue sea
- City roads at night
- Brooklyn bridge and new york

If you want to apply the same filter as the pictures already included in the template, follow these instructions.

In Photoshop:

1. Open the picture in Photoshop.
2. On the Layers panel, click the Create New Adjustment Layer button.
3. Select Photo Filter and click Color.
4. Paste this hex code: #908269
5. Adjust the density to increase or decrease the filter effect.

In Google Slides / PowerPoint:

1. Create a new shape with the same shape as the photo to which you want to apply the filter.
2. Select the color for the filter (#908269) and reduce the opacity until you're happy with the result.
3. If you want to modify the photo, move the filter to a side first.



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- Icons by [Flaticon](#)
- Infographics by [Freepik](#)
- Images created by [Freepik](#)

# RESOURCES

Did you like the resources on this template? Get them for free at our other websites.

## VECTORS

- Usa map
- Gradient logo with abstract shape

## PHOTOS

- Elevated view of road with trees growing in forest
- Foggy weather in city with channel
- American flag on brooklyn bridge in new york
- Brightly illuminated city street
- Blurred traffic lights on street at night
- Road block signs closeup
- Crosswalks in the city closeup
- Manhattan bridge in new york

- Contemporary buildings on waterfront of river
- Brooklyn bridge over east river in new york
- Motion in the city intersection
- Architecture project and tablet mockup
- Railways closeup with blurred background
- Train on railway closeup
- Man in black t-shirt standing in front of railway train
- Portrait of a female architect writing on book at workplace
- Portrait of smiling architect man holding cellphone and hard hat with blueprint at construction site
- Elevated view of straight and curve road in forest

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This presentation has been made using the following fonts:

## **Livvic**

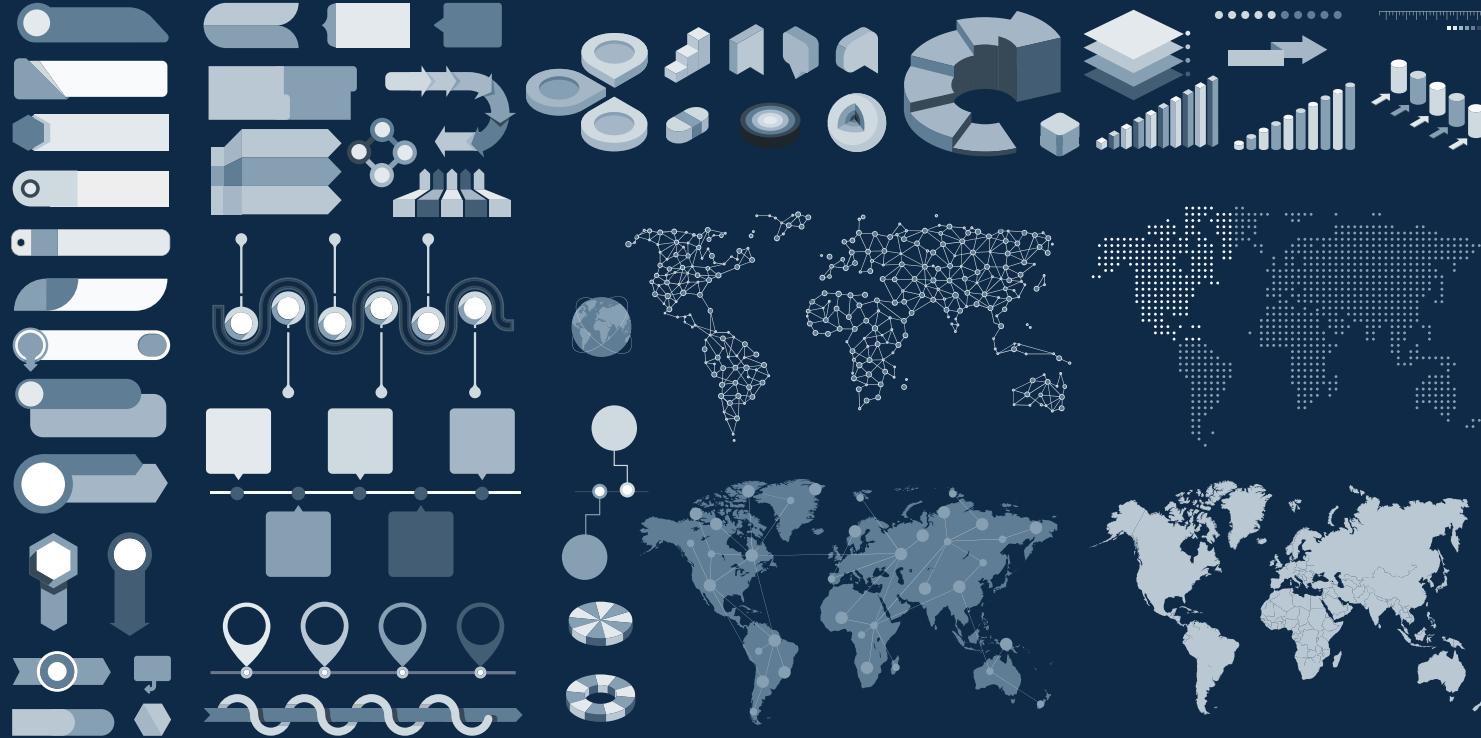
(<https://fonts.google.com/specimen/Livvic>)

## **Catamaran**

(<https://fonts.google.com/specimen/Catamaran>)

#434343

#908269



# Use our editable graphic resources...

You can easily resize these resources, keeping the quality. To change the color, just ungroup the resource and click on the object you want to change. Then, click on the paint bucket and select the color you want. Don't forget to group the resource again when you're done.



## ...and our set of editable icons

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You can change the stroke and fill color; just select the icon and click on the paint-bucket/pen.

In Google Slides, you can also use Flaticon's extension, allowing you to customize and add even more icons.



## Educational Icons



## Medical Icons



## Business Icons



## Teamwork Icons



## Help & Support Icons



## Avatar Icons



## Creative Process Icons



## Performing Arts Icons



# Nature Icons



# SEO & Marketing Icons



