

# EMPLOYEE ANALYTICS DASHBOARD

Employee Count

1,470

Attrition Count

237

Attrition Rate

16%

Active Employee

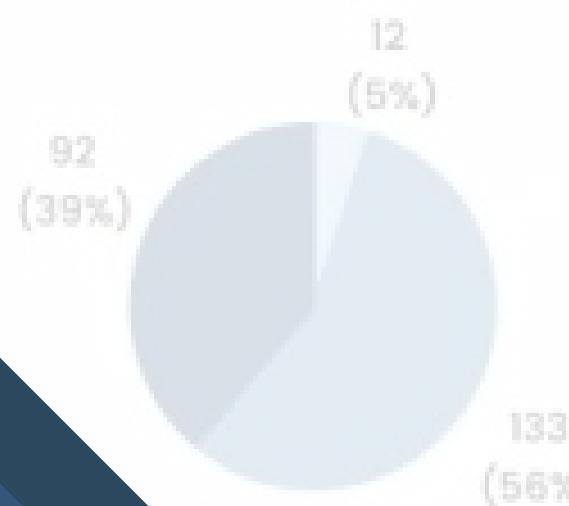
1,233

Average Age

37

# SUPER-STORE APP

Department Wise Attrition



Total of Employee

Age range 18 - 60



Job Satisfaction Role

	1	2	3	4
Healthcare Rep.	26	19	18	15
Human Resourc.	10	16	14	12
Laboratory Tech..	56	48	78	88
Manager	21	21	27	33
Manufacturing D.	26	32	49	38
Research Direct..	15	16	27	22
Research Scienti..	54	53	90	95
Sales Executive	69	64	91	112
Sales Répresent..	12	21	27	23
Grand Total	289	280	442	459

ANGELA MARIA RUIZ TOVAR

Attrition Rate by Age Group



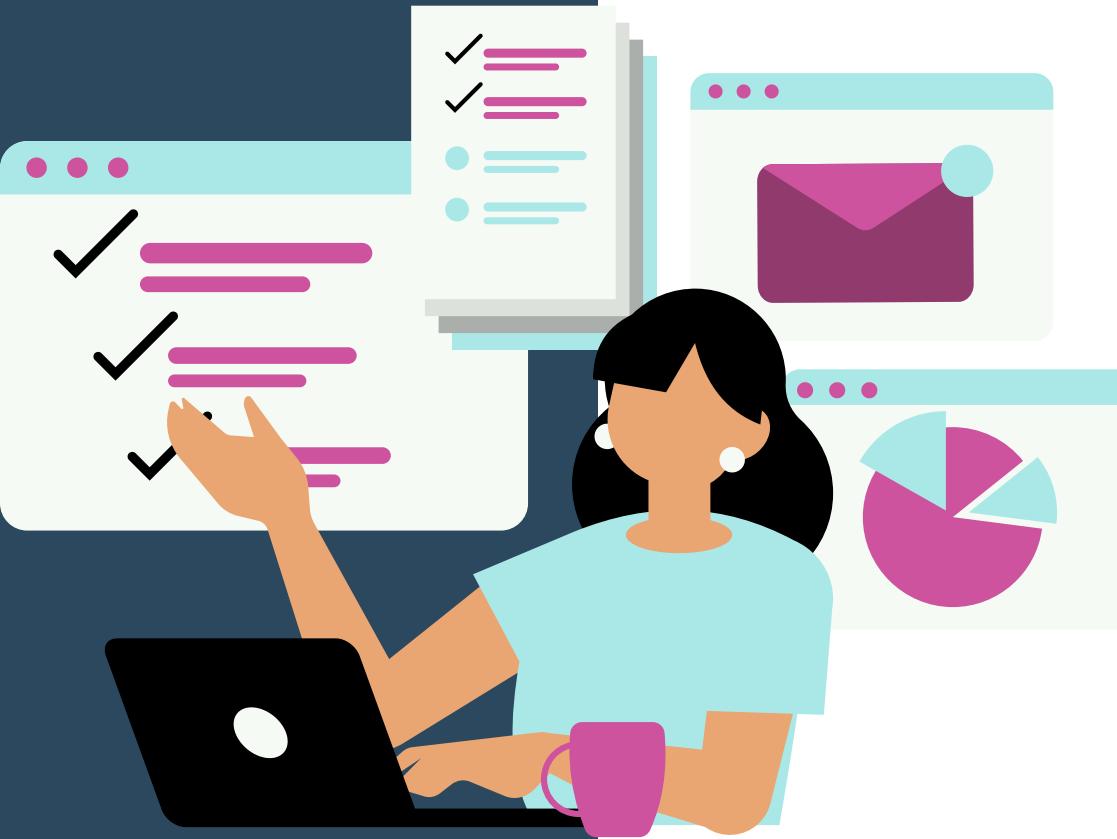
# *Problematica*

En el contexto actual de transformación digital, los supermercados requieren soluciones tecnológicas que les permitan modernizar su infraestructura, responder a una alta demanda de usuarios y aprovechar el valor de los datos recolectados. Por eso nace Super-Store App, una aplicación basada en microservicios que permite al administrador gestionar productos, usuarios y visualizar la información más importante, todo a través de un solo clic.



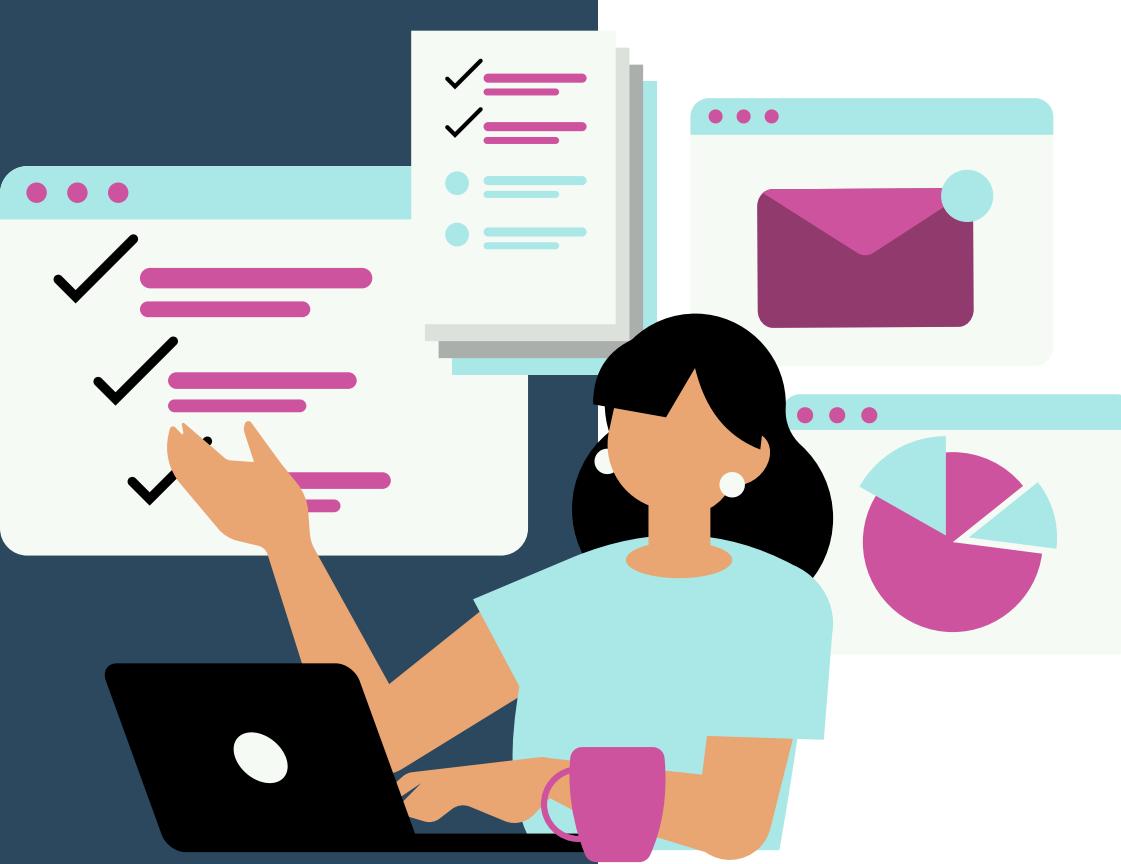
# *Objetivo generales*

Desarrollar una aplicación de tienda funcional y escalable que facilite la interacción entre usuarios y administradores, permitiendo la gestión de ventas y brindando al administrador herramientas para analizar las estadísticas del negocio



# Objetivo generales

- Desarrollar una aplicación de tienda en línea funcional utilizando una arquitectura de microservicios.
- Implementar cada microservicio de forma independiente, gestionando una funcionalidad específica del negocio.
- Empaquetar cada microservicio de la aplicación utilizando Docker Compose, facilitando su despliegue y gestión.
- Crear un entorno distribuido entre dos nodos para la aplicación web, empleando imágenes previamente publicadas en Docker Hub, asegurando su correcto funcionamiento.
- Desarrollar una aplicación con Apache Spark que permita analizar el dataset de la tienda y cargar los resultados en el clúster correspondiente.
- Generar un panel de visualización que permita mostrar de forma clara y efectiva la información recolectada por la aplicación.



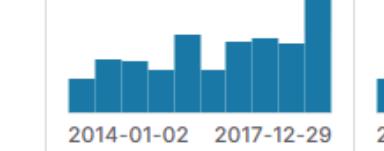
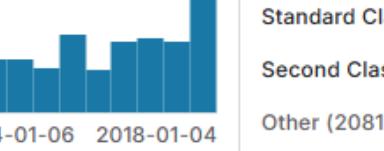
# Selección del Dataset

Sample - Superstore.csv (2.29 MB)

Detail   Compact   Column

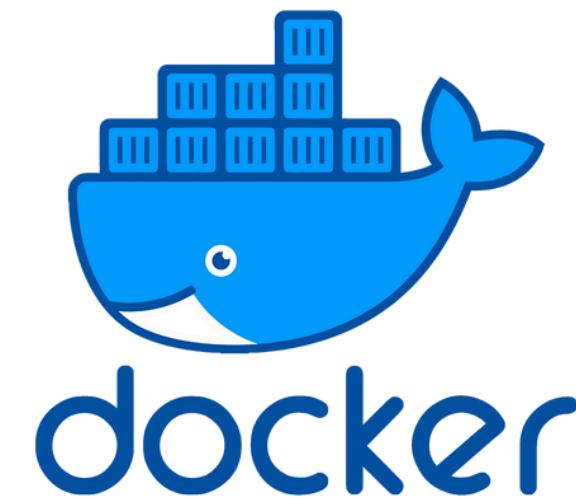
## About this file

Dataset containing Information related to Sales, Profits and other interesting facts of a Superstore giant.

Row ID	Order ID	Order Date	Ship Date	Ship Mode	Customer ID	Customer Name	Segment	Country	City		
1	Unique ID for each row.	Unique Order ID for each Customer.	Order Date of the product.	Shipping Date of the Product.	Shipping Mode specified by the Customer.	Unique ID to identify each Customer.	Name of the Customer.	The segment where the Customer belongs.	Country of residence of the Customer.	City of residence of the Customer.	
1	5009 unique values			Standard Class Second Class Other (2081)	60% 19% 21%	793 unique values	793 unique values	Consumer Corporate Other (1783)	52% 30% 18%		New York City 9% Los Angeles 7% Other (8332) 83%
1	CA-2016-152156	11/8/2016	11/11/2016	Second Class	CG-12520	Claire Gute	Consumer	United States	Henderson		
2	CA-2016-152156	11/8/2016	11/11/2016	Second Class	CG-12520	Claire Gute	Consumer	United States	Henderson		
3	CA-2016-138688	6/12/2016	6/16/2016	Second Class	DV-13045	Darrin Van Huff	Corporate	United States	Los Angeles		
4	US-2015-108966	10/11/2015	10/18/2015	Standard Class	SO-20335	Sean O'Donnell	Consumer	United States	Fort Lauderdale		
5	US-2015-108966	10/11/2015	10/18/2015	Standard Class	SO-20335	Sean O'Donnell	Consumer	United States	Fort Lauderdale		
6	CA-2014-115812	6/9/2014	6/14/2014	Standard Class	BH-11710	Brosina Hoffman	Consumer	United States	Los Angeles		
7	CA-2014-115812	6/9/2014	6/14/2014	Standard Class	BH-11710	Brosina Hoffman	Consumer	United States	Los Angeles		
8	CA-2014-115812	6/9/2014	6/14/2014	Standard Class	BH-11710	Brosina Hoffman	Consumer	United States	Los Angeles		
9	CA-2014-115812	6/9/2014	6/14/2014	Standard Class	BH-11710	Brosina Hoffman	Consumer	United States	Los Angeles		
10	CA-2014-115812	6/9/2014	6/14/2014	Standard Class	BH-11710	Brosina Hoffman	Consumer	United States	Los Angeles		
11	CA-2014-115812	6/9/2014	6/14/2014	Standard Class	BH-11710	Brosina Hoffman	Consumer	United States	Los Angeles		
12	CA-2014-115812	6/9/2014	6/14/2014	Standard Class	BH-11710	Brosina Hoffman	Consumer	United States	Los Angeles		
13	CA-2017-114412	4/15/2017	4/20/2017	Standard Class	AA-10480	Andrew Allen	Consumer	United States	Concord		

# *Alternativas de solución*

*Despliegue y empaquetamiento*

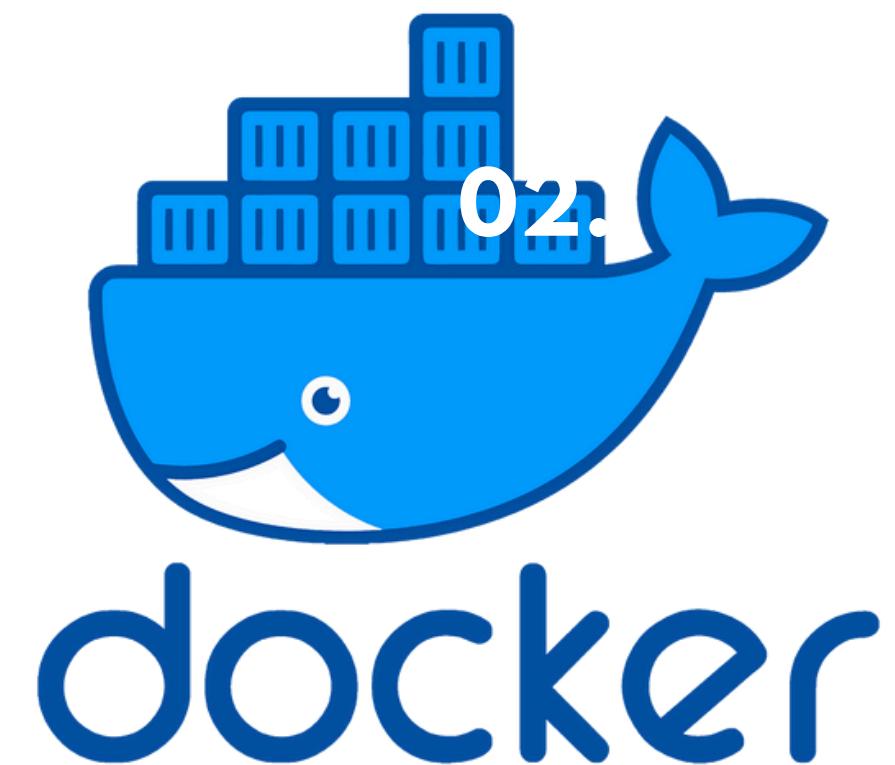


**kubernetes**

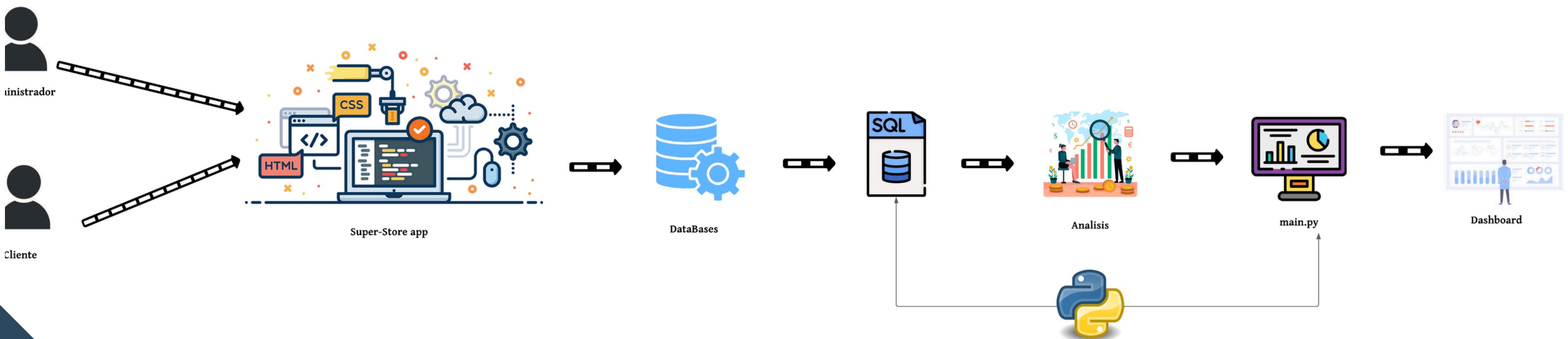
*Procesamiento distribuido*



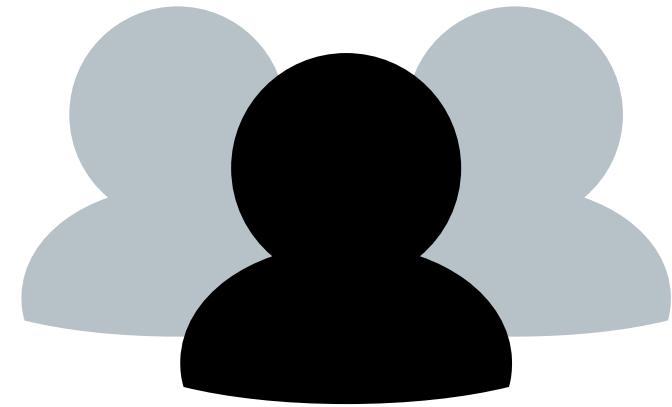
# *Alternativas de solución escogidas*



# propuesta de pipeline a utilizar



# *Microservicios*



*Usuarios*



*Productos*



*Carrito*



*Ordenes*

# ***APLICACIÓN WEB***

http:192.168.100.2:8080 - 192.168.100.3:8080

The screenshot shows a web page with a light gray background. At the top, there's a yellow header bar. Below it, the title 'Super Store' is displayed in a large, bold, dark font. Underneath the title, the tagline 'Tu tienda en línea favorita' is written in a smaller, italicized dark font. In the center of the page, there's a paragraph of text: 'Explora una amplia variedad de productos de alta calidad, desde moda hasta tecnología. Compra fácil, rápido y seguro con Super Store.' Below this text is a blue button with the text 'Comenzar a Comprar' in white. On the far left edge of the page, there are several pink concentric circles.



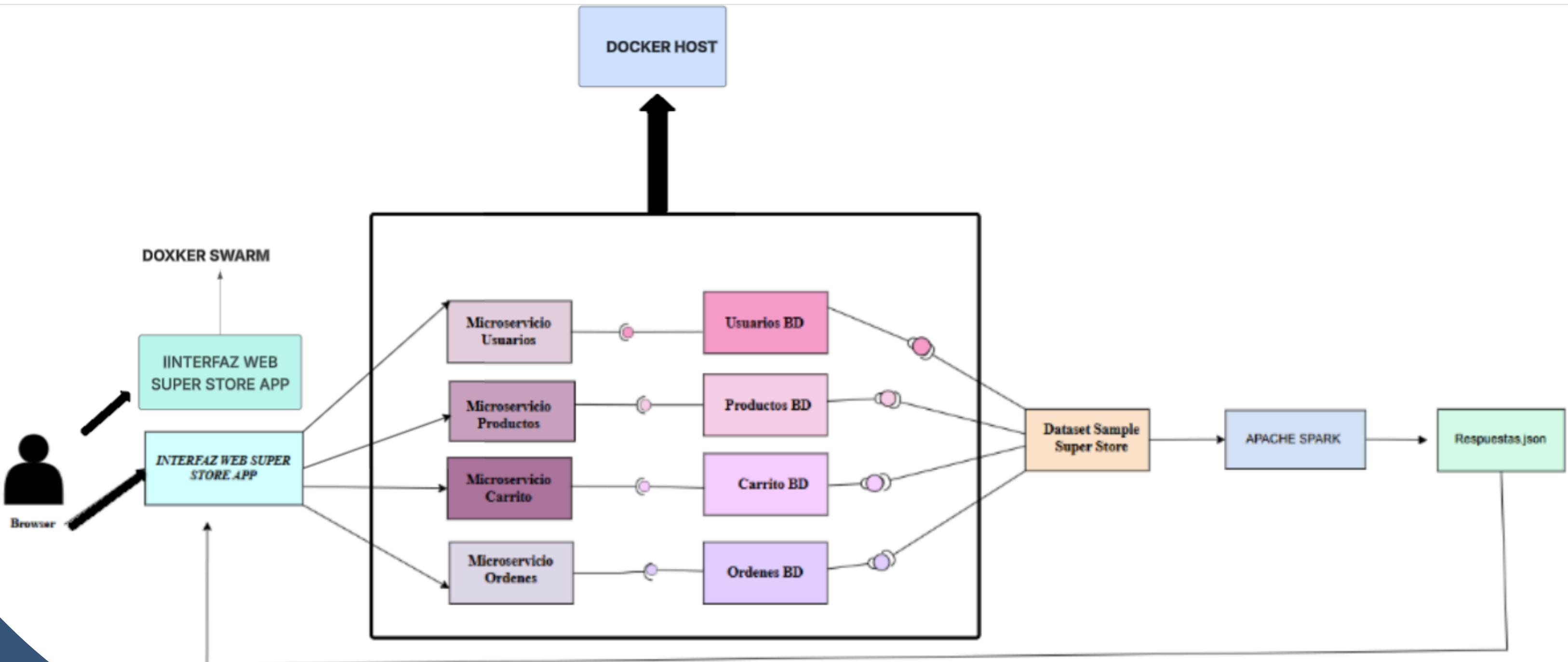
**HTML**



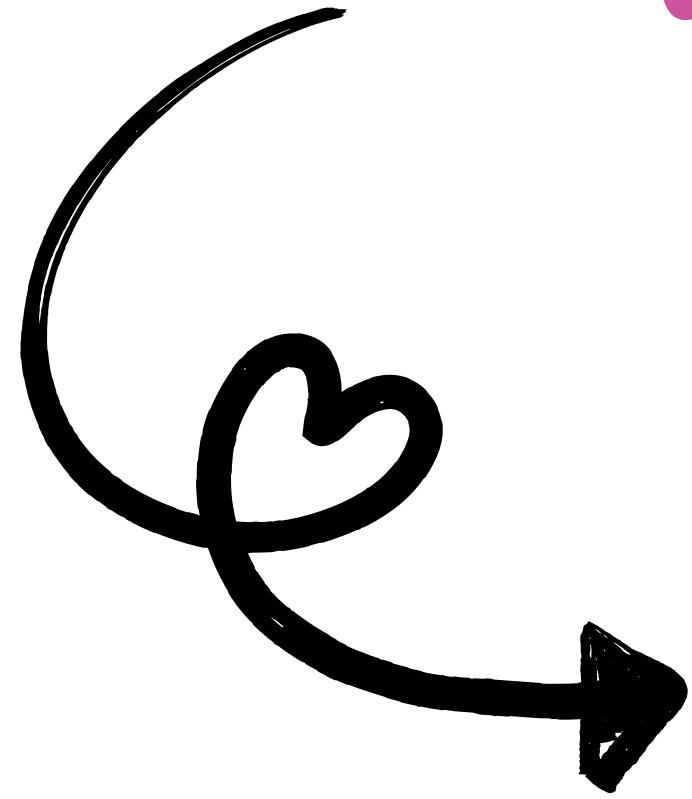
**CSS**



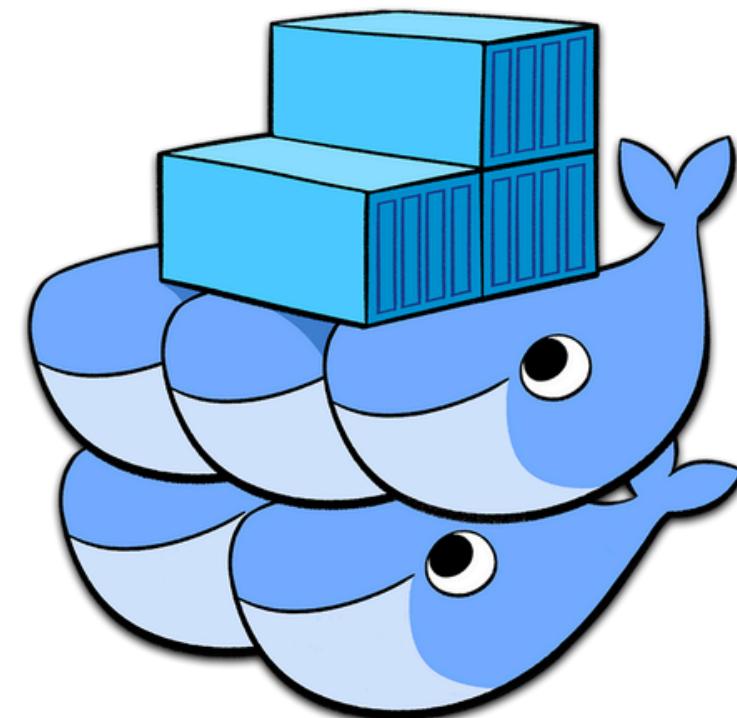
# Diagrama de Componentes



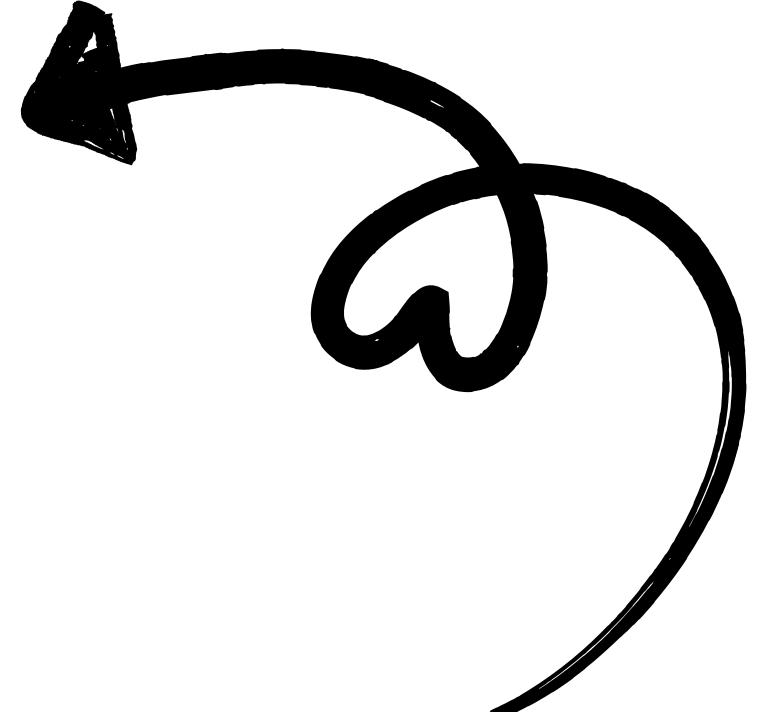
**EMPQUETADO**



docker

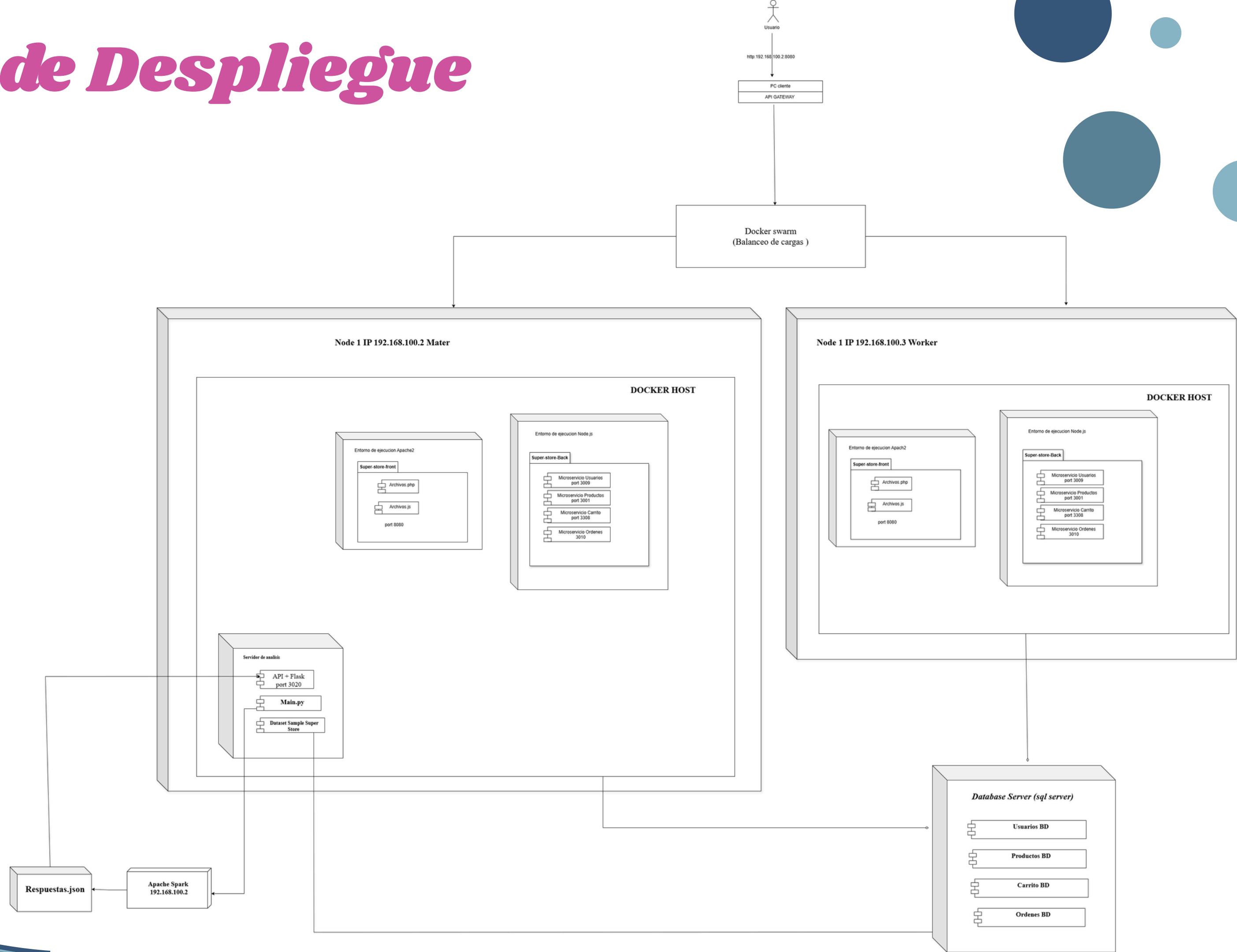


docker swarm



**BALANCEO DE CARGA**

# Diagrama de Despliegue



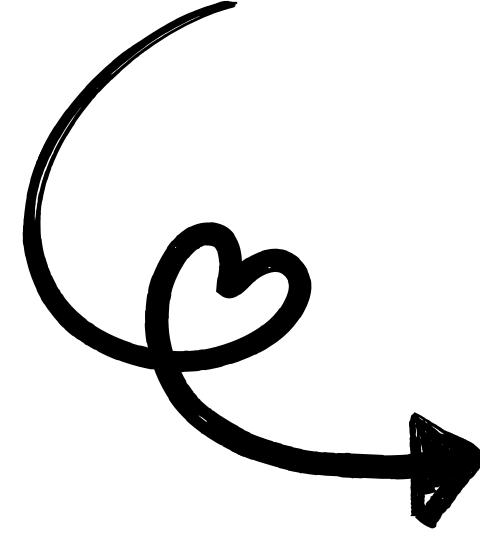
# DOCKER-COMPOSE.YML

```
1 version: '3.8'
2 services:
3   usuarios:
4     image: angelaruiz2006/super-store-usuarios:v1
5     ports:
6       - "3009:3009"
7     networks:
8       - app-network
9   deploy:
10    replicas: 2
11   environment:
12     MYSQL_HOST: mysql
13     MYSQL_USER: root
14     MYSQL_PASSWORD: password
15     MYSQL_DATABASE: usuariosbd
16
17   productos:
18     image: angelaruiz2006/super-store-productos:v1
19     ports:
20       - "3001:3001"
21     networks:
22       - app-network
23     deploy:
24       replicas: 3
25
26   ordenes:
27     image: angelaruiz2006/super-store-ordenes:v1
28     ports:
29       - "3010:3010"
30     networks:
31       - app-network
32     environment:
33       PRODUCTS_URL: "http://productos:3001"
34       CART_URL: "http://carrito:3308"
35     deploy:
36       replicas: 3
```

```
1 carrito:
2   image: angelaruiz2006/super-store-carrito:v1
3   ports:
4     - "3308:3308"
5   networks:
6     - app-network
7   environment:
8     USUARIOS_URL: "http://usuarios:3009"
9     PRODUCTOS_URL: "http://productos:3001"
10  deploy:
11    replicas: 3
12
13  frontend:
14    image: angelaruiz2006/super-store-front:v1
15    ports:
16      - "8080:80"
17    networks:
18      - app-network
19    deploy:
20      replicas: 2
21
22  mysql:
23    image: angelaruiz2006/super-store-mysql:v1
24    environment:
25      MYSQL_ROOT_PASSWORD: password
26    volumes:
27      - mysql-data:/var/lib/mysql
28    ports:
29      - "3307:3306"
30    networks:
31      - app-network
32    deploy:
33      replicas: 1
34      resources:
35        limits:
36          cpus: '0.5'
37          memory: 512M
38        restart_policy:
39          condition: on-failure
40        max_attempts: 3
41
```

```
1 servidor:
2   image: angelaruiz2006/super-store-servidor:v1
3   ports:
4     - "3020:3020"
5   networks:
6     - app-network
7   deploy:
8     replicas: 2
9   environment:
10    FLASK_ENV: production
11
12  networks:
13    app-network:
14      driver: overlay
15
16  volumes:
17    mysql-data:
18      driver: local
```

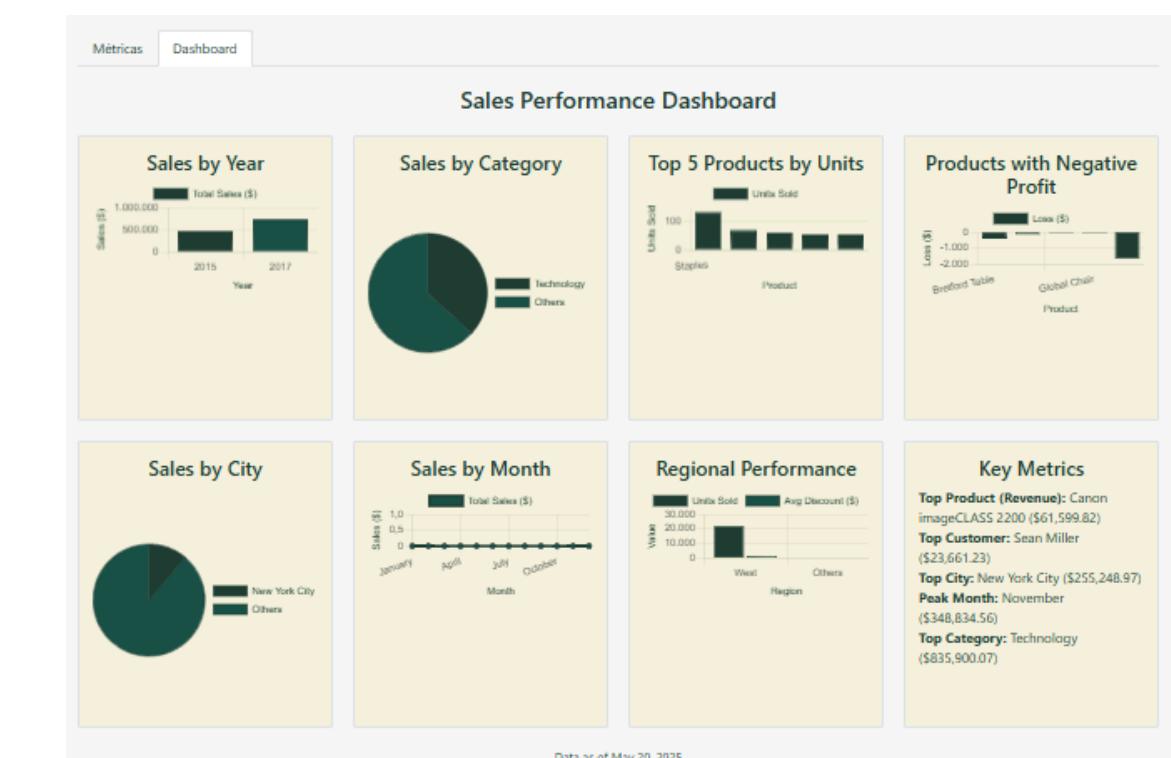
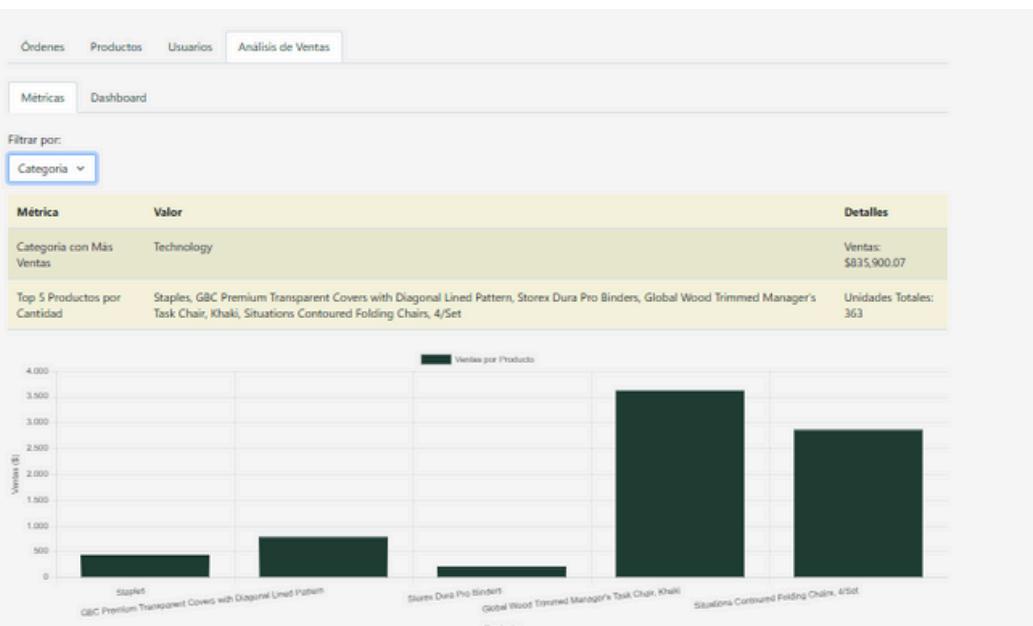
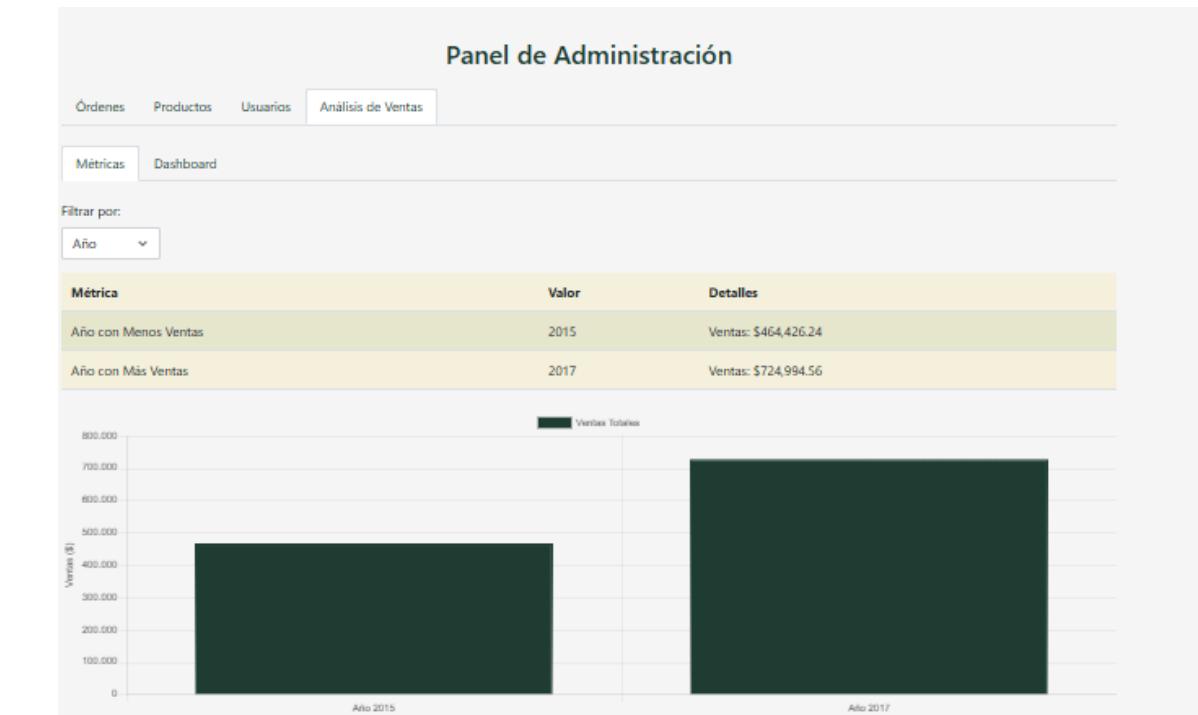
***DESARROLLO EN PYSPARK***



***EJECUCIÓN EN CLÚSTER SPARK***

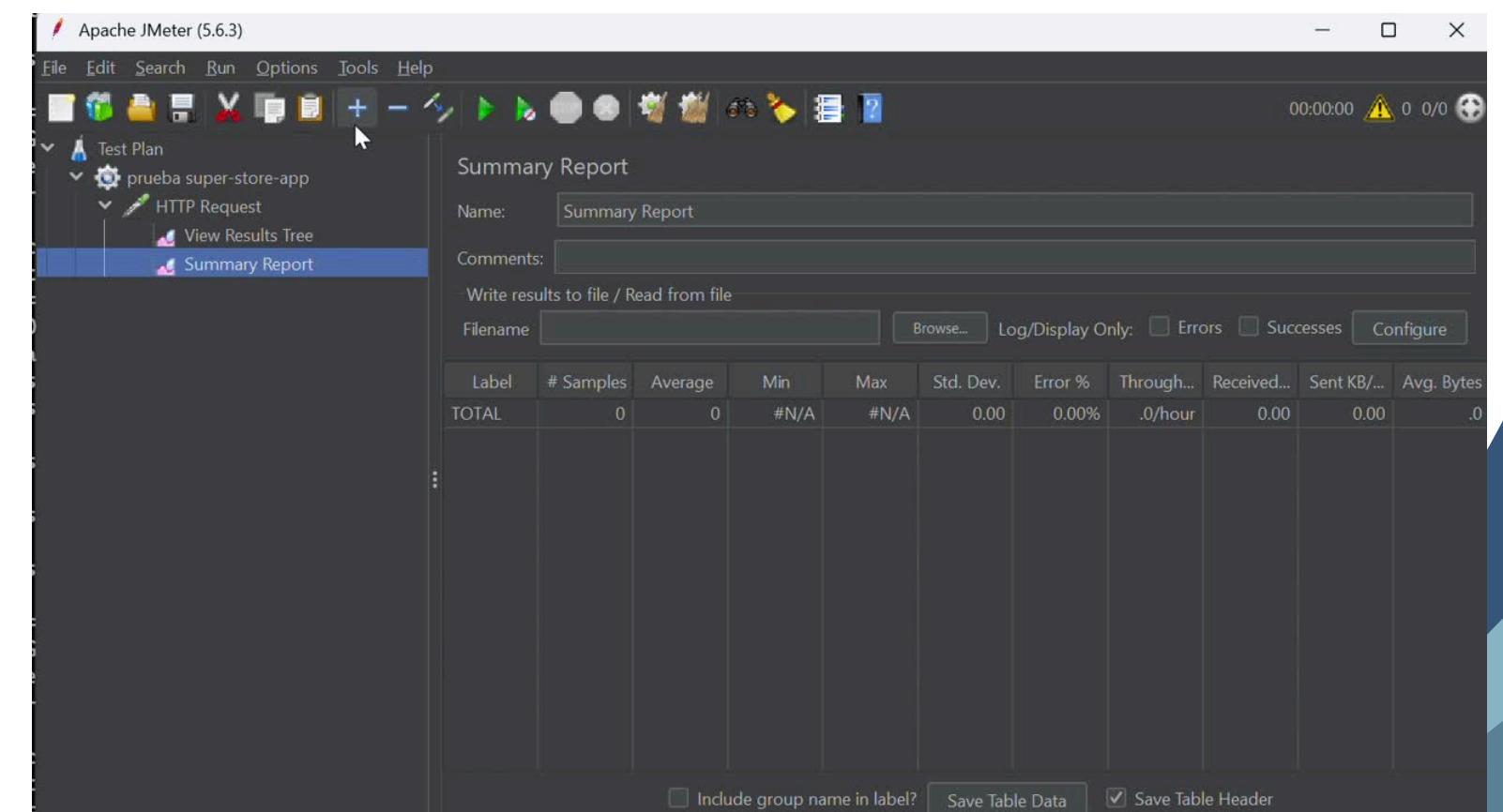
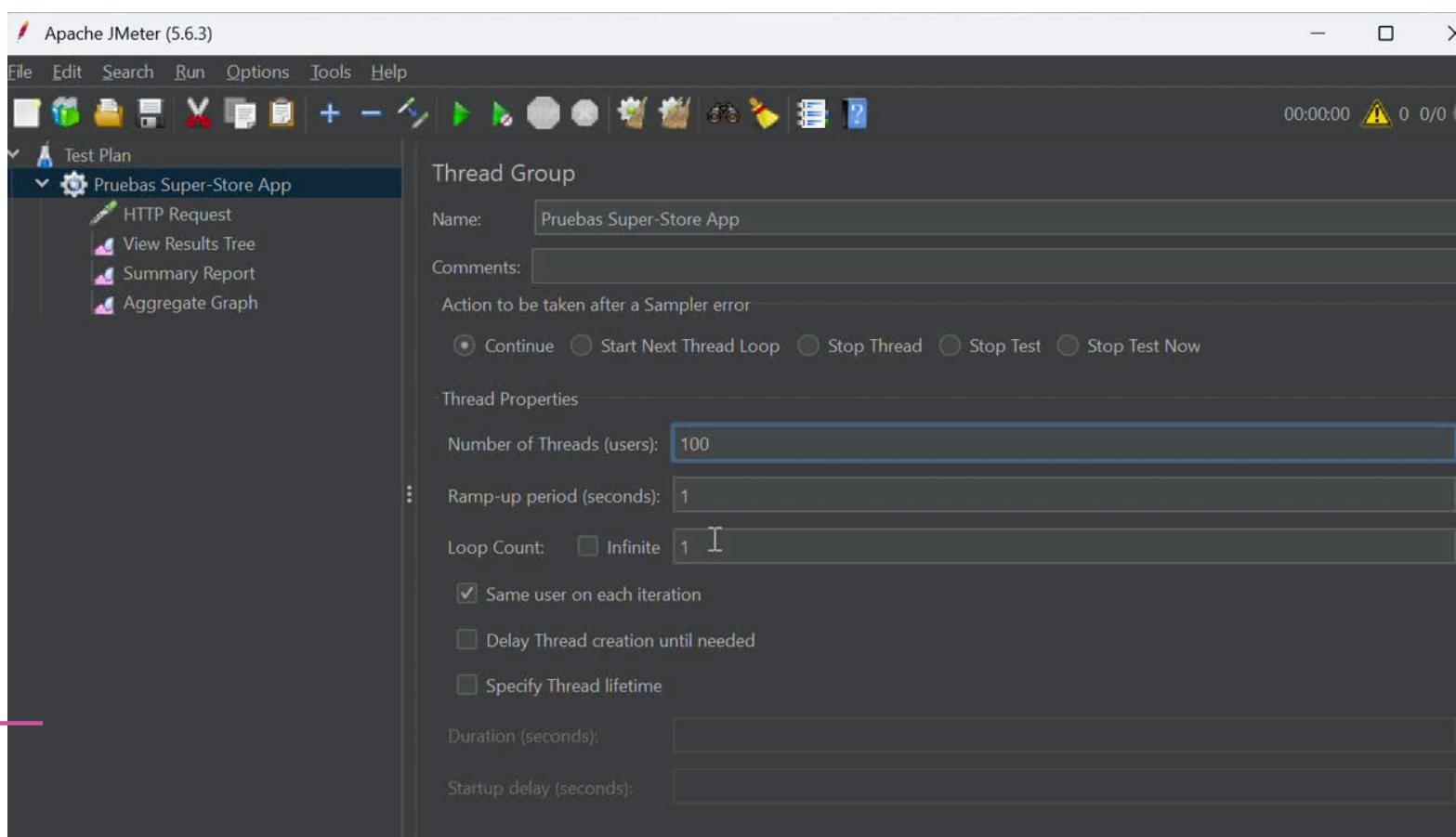


# Resultados del análisis

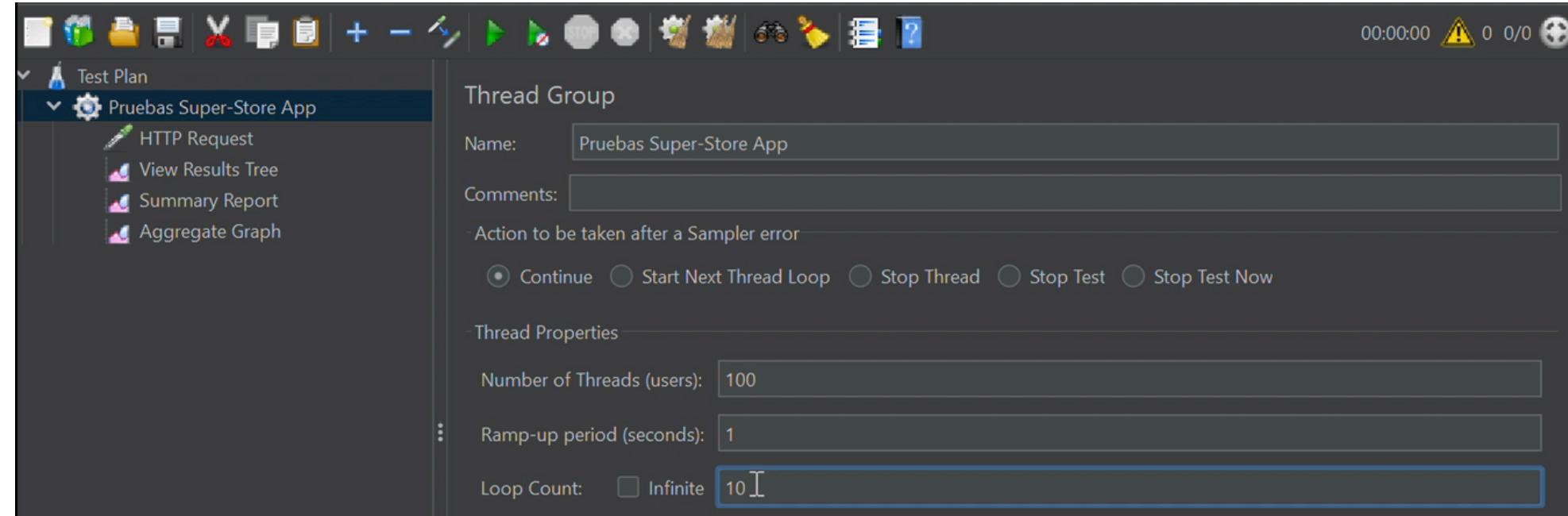


# PRUEBAS DE ESCALABILIDAD

```
root@servidorUbuntu:~# docker service ls
ID          NAME      MODE      REPLICAS  IMAGE
wdecfgn3kjda  super-store_carrito  replicated  3/3        angelaruiz2006/super-store-carrito:v1
ihwjwpz6xtky  super-store_frontend  replicated  2/2        angelaruiz2006/super-store-front:v1
2arwaes0rg3a   super-store_mysql    replicated  2/2        angelaruiz2006/super-store-mysql:v1
hbzk04bxw5e0   super-store_ordenes  replicated  3/3        angelaruiz2006/super-store-ordenes:v1
m5oxbrxvnzot  super-store_productos replicated  3/3        angelaruiz2006/super-store-productos:v1
r6izqf0nbpsy   super-store_servidor  replicated  2/2        angelaruiz2006/super-store-servidor:v1
mikq2yxwl9w2   super-store_usuarios replicated  2/2        angelaruiz2006/super-store-usuarios:v1
PORTS
*:3308->3308/tcp
*:8080->80/tcp
*:3307->3306/tcp
*:3010->3010/tcp
*:3001->3001/tcp
*:3020->3020/tcp
*:3009->3009/tcp
root@servidorUbuntu:~# |
```

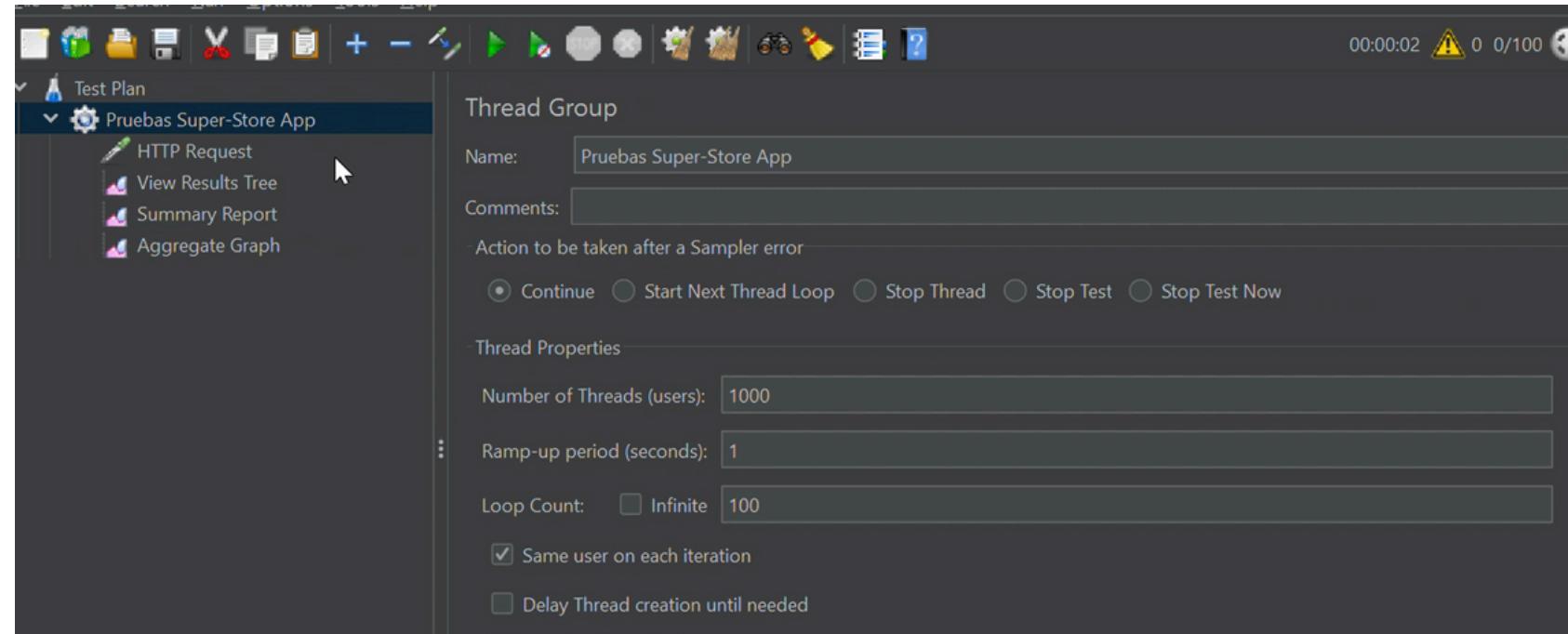


# PRUEBAS DE ESCALABILIDAD



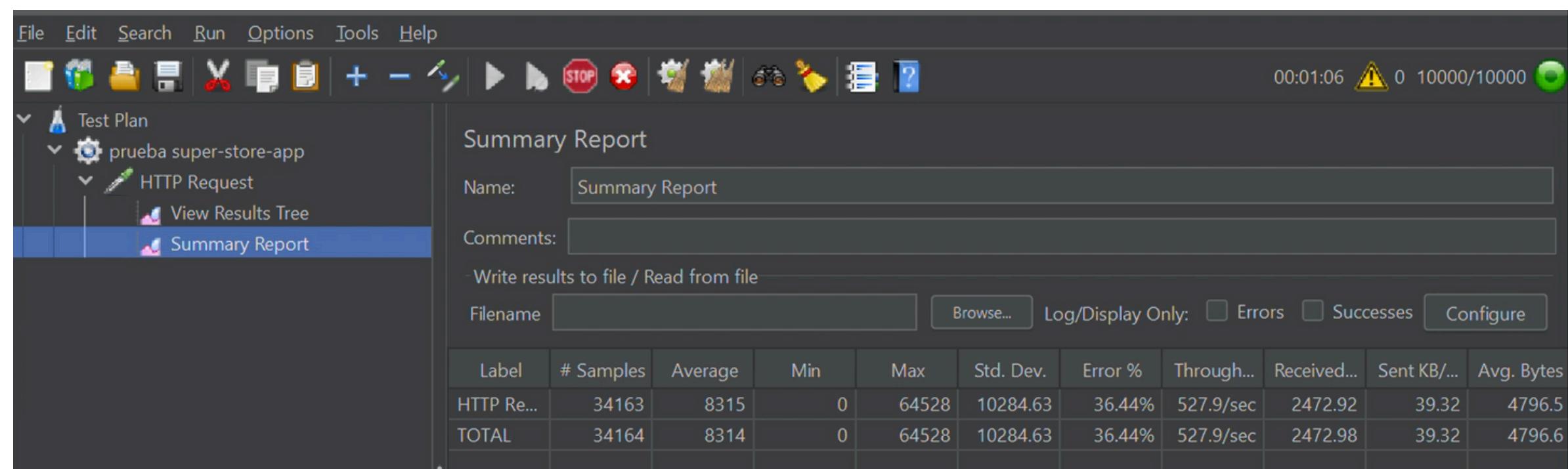
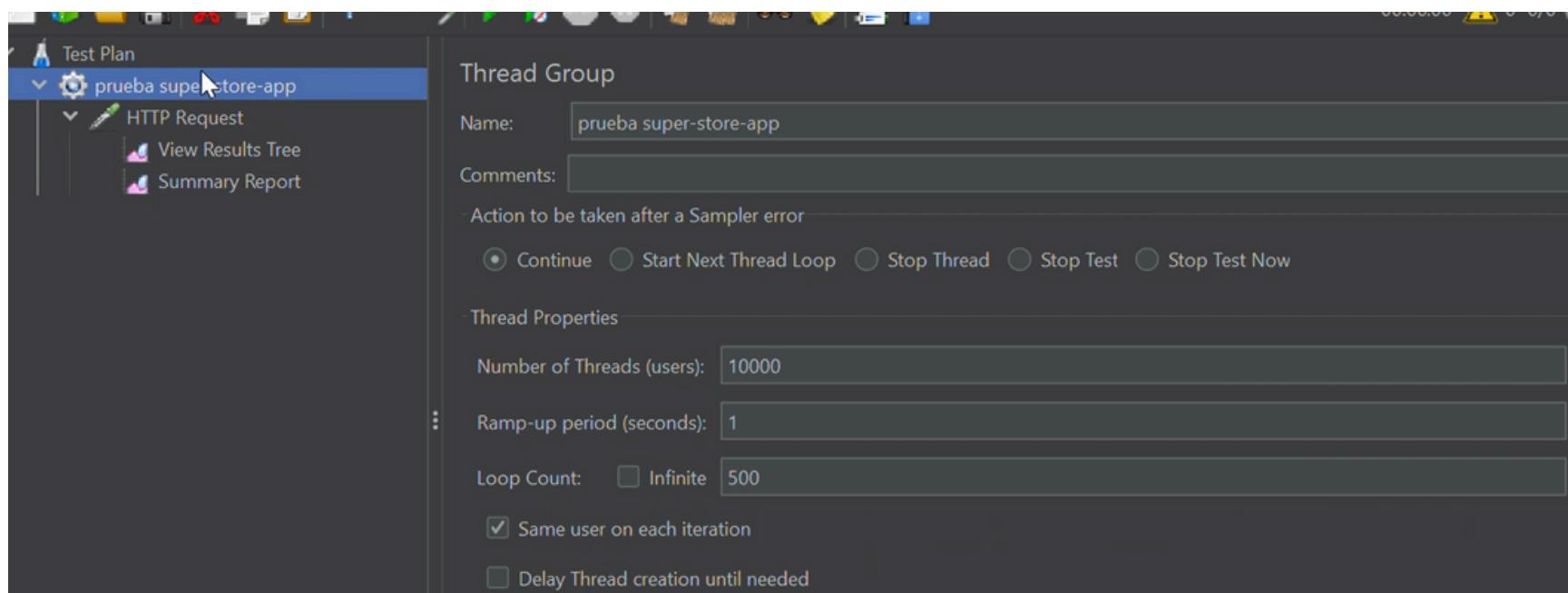
Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Through...	Received...	Sent KB/...	Avg. Bytes
HTTP Re...	1000	77	1	1084	188.78	0.00%	486.6/sec	2876.04	57.03	6052.1
TOTAL	1000	77	1	1084	188.78	0.00%	486.6/sec	2876.04	57.03	6052.1

# PRUEBAS DE ESCALABILIDAD



Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Through...	Received...	Sent KB/...	Avg. Bytes
HTTP Re...	101000	736	0	77494	4223.99	0.00%	419.8/sec	2481.16	49.20	6052.0
TOTAL	101000	736	0	77494	4223.99	0.00%	419.8/sec	2481.16	49.20	6052.0

# PRUEBAS DE ESCALABILIDAD



*GRACIAS*

