

ANALISIS_PROYECTO_REDIS

Creación de un Pipeline de Datos y API con Caché Inteligente

Objetivo General del Proyecto

Desarrollar una solución integral de backend que demuestre la capacidad de migrar datos a gran escala, exponerlos a través de una API segura y optimizada, y desplegarla en un entorno de nube productivo. El proyecto culmina con la implementación de un sistema de monitoreo y una estrategia de caché con invalidación automática.

Fase 1: Preparación y Migración de Datos

Selección del Dataset:

- Se eligió un Dataset en Kaggle sobre Animes, con exactamente 20,238 registros.
- El Dataset consta de 12 columnas, se han elegido 6 columnas con la información más relevante: title, type, year, score, episodes, genres.

Migración de Datos con Azure Data Factory

- Se ha usado el servicio Azure Data Factory como Orquestador para realizar un proceso ETL que extrae columnas de datos de un .csv hacia una base de datos Azure SQL.
- En Azure Data Factory debe hacer conexión con los servicios de almacenamiento que se usarán para el ETL.

Conexión con los servicios de almacenamiento desde Azure Data Factory:

Microsoft Azure | Data Factory | adf-animeproject-dev

Search factory and documentation

Would you like to see Data Factory inside of Microsoft Fabric, Microsoft's newest cloud-first data analytics SaaS platform? Click [here](#) to get started with Fabric Data Factory!

» Data Factory | Validate all | Publish all

Factory Resources

Filter resources by name

- Pipelines 0
- Change Data Capture (preview) 0
- Datasets 1**
 - DelimitedText1
- Data flows 0
- Power Query 0

DelimitedText1

CSV

Preview data

animeID	title	alternative_title	type	year	score	episodes	mal_url	sequel	image
1	Howl's Moving Castle	Howl no Ugoku Shiro	MOVIE	2004	8.41	1	https://myanimelist.net/anime/431	False	https://cdn.myanimelist.net/images/anime/1/431.jpg

view data | Detect format

Connection Schema Parameters

Linked service *

File path *

Compression type

Column delimiter

Row delimiter

Encoding

Quote character

Escape character

Creación del los Dataset relacionadas a los servicios de almacenamiento:

» Publish all

DelimitedText1 **AzureSqlTable1**

Azure SQL Database

AzureSqlTable1

Connection Schema Parameters

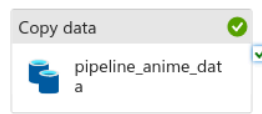
Linked service * AzureSqlDatabase1 Test connection Edit + New Learn more

Connection successful

Table dbo.tb_anime Refresh Preview data

☐ Enter manually

Pipeline completado:



Parameters

Variables

Settings

Output

Pipeline run ID

201089a7-fef5-412d-aba6-61dcb5b56ccd

Pipeline status

Succeeded

All status

Monitor i

Showing 1 - 1 of 1 items

Activity name	Activity st...	Activit...	Run start	Duration	Integration runtime	User prop...
pipeline_anime_data	<div></div> Succeeded	Copy data	7/23/2025, 3:45:23 PM	21s	AutoResolveIntegrationRuntime (Central US)	

Servicios creados para el pipeline de datos:

<input type="checkbox"/>	Name ↑
<input type="checkbox"/>	adf-animeproject-dev
<input type="checkbox"/>	animeproject_db (dbserver-animeproject-dev/animeproject_db)
<input type="checkbox"/>	dbserver-animeproject-dev
<input type="checkbox"/>	saanimeprojectdev

Fase 2: Desarrollo de API y Autenticación

Tecnología

- Se ha usado FastAPI para la creación de la API REST

A continuación se muestran las librerías/dependencias utilizadas en el proyecto FastAPI:

```
python3 -m venv env-api
pip install fastapi
pip install uvicorn
```

```
pip install dotenv
pip install pyodbc
```

```
pip install pyrebase
pip install firebase-admin
pip install firebase
```

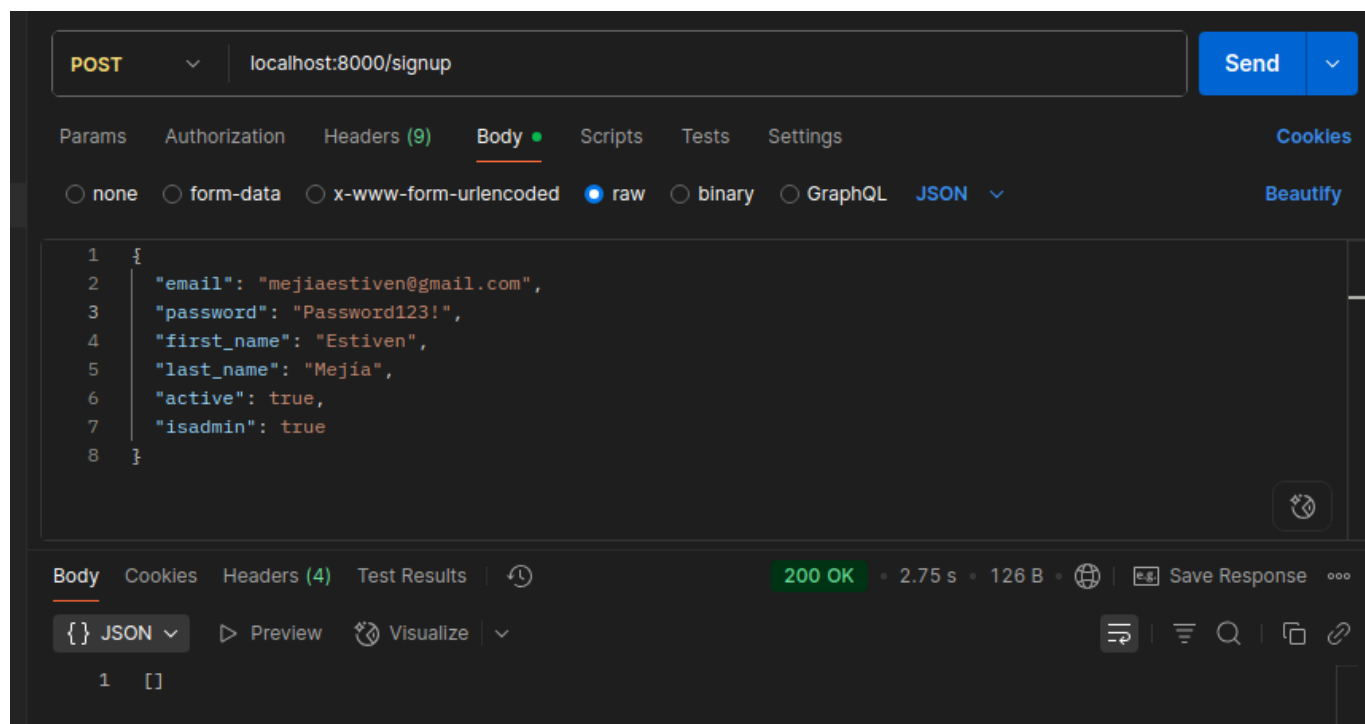
Autenticación y Autorización con Firebase

- Se ha implementado Firebase para la gestión de registro e inicio de sesión de los usuarios en la aplicación.
- Se ha implementado JWT con un tiempo de vida para autorizaciones y autenticaciones de los usuarios a ciertos Endpoint de la API.

Endpoint Signup

- Las pruebas en estas capturas de pantalla fueron hechas en ambiente de desarrollo.

Enviando datos de registro desde Postman:



Usuario registrado en la base de datos:

```

22 |         is_admin BIT,
23 |     )
24 |
25 | select * from users;
26 |
27 |
28 |

```

Results Messages

	user_id ▾	first_name ▾	last_name ▾	email ▾	is_active ▾	is_admin ▾
1	1	Estiven	Mejía	estivenmejia@gmail.com	1	1

Usuario registrado en Firebase:

de Firebase autenticación a través de proveedores de correo electrónico en apps para dispositivos móviles, así como la compatibilidad con OAuth de Cordova para apps web.

Agregar usuario

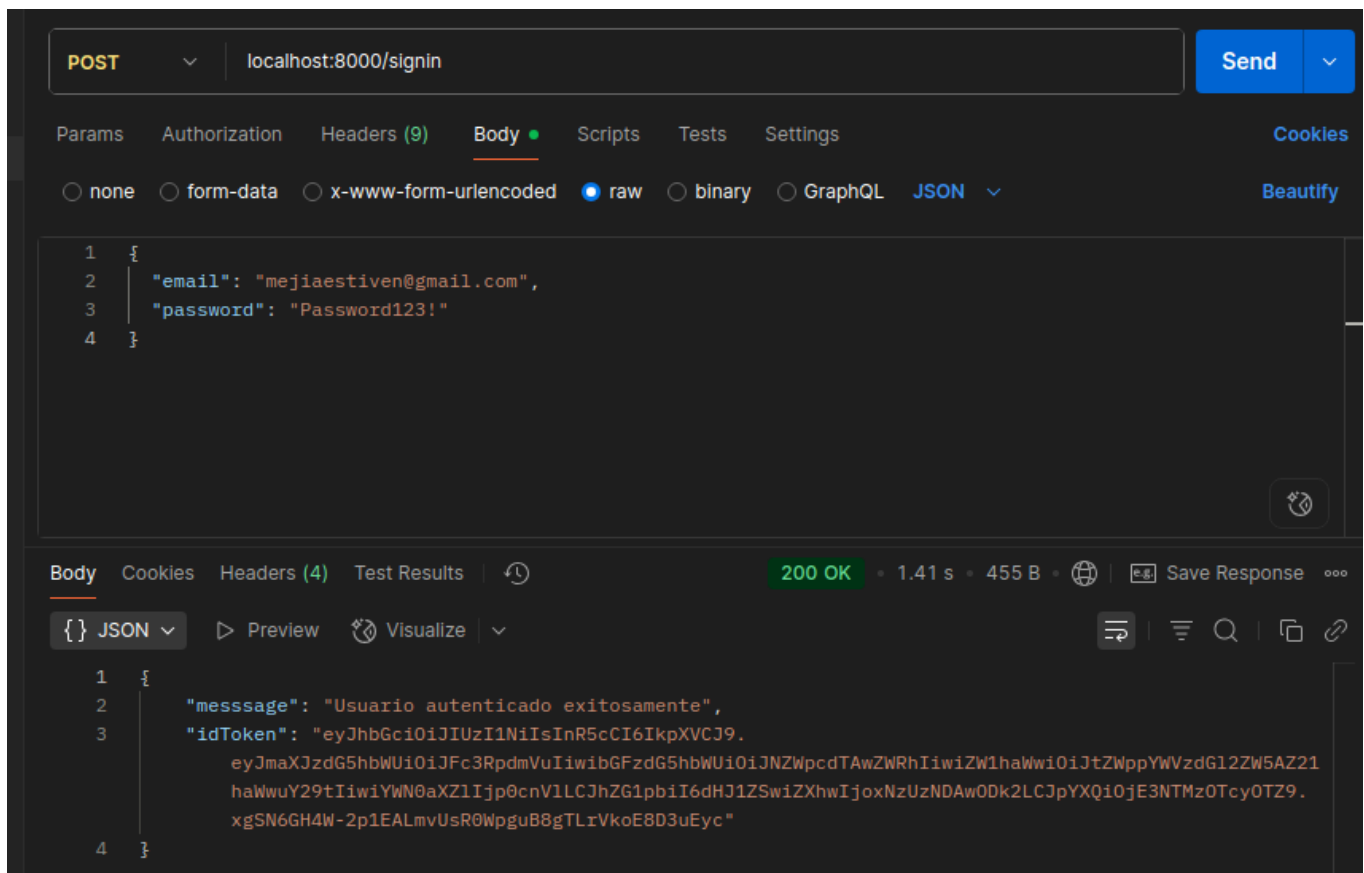
Identificador	Proveedores	Fecha de creación ▾	Fecha de acceso	UID del usuario
estivenmejia@gmail.com		24 jul 2025		Rlwi5K8hJlg7zWf27ax0H3lGQ...

Filas por página: 50 ▾ 1 - 1 of 1 < >

Endpoint Signin

- Las pruebas en estas capturas de pantalla fueron hechas en ambiente de desarrollo.

Respuesta del Login del usuario:



Endpoint para obtener toda la lista de datos

- Las pruebas en estas capturas de pantalla fueron hechas en ambiente de desarrollo.

Tiempo de respuesta al traer toda la lista de animes:

GET

localhost:8000/animes

Send

Params • Authorization Headers (7) Body Scripts Tests Settings Cookies

Query Params

<input type="checkbox"/>	Key	Value	Description	*** Bulk Edit
<input type="checkbox"/>	type	OVA		
<input type="checkbox"/>	year	200		
	Key	Value	Description	

Body Cookies Headers (4) Test Results

200 OK • 3.41 s • 2.72 MB • Save Response

{ } JSON Preview Visualize

176788

}

176789

{

176790

"anime_id": 36494,

176791

"title": "Hyper ERT",

176792

"type": "TV",

176793

"year": "2008",

176794

"score": "4.68",

176795

"episodes": 20,

176796

"genres": "[]"

176797

}

176798

]

Endpoint de lista de animes con un filtro:

GET localhost:8000/animes?year=2010

Params • Authorization Headers (7) Body Scripts Tests Settings Cookies

Query Params

Key	Value	Description
type	OVA	
year	2010	

Body Cookies Headers (4) Test Results 200 OK • 1.64 s • 77.38 KB Save Response

{ } JSON Preview Visualize

```
1 [
2   {
3     "anime_id": 16268,
4     "title": "The Secret World of Arrietty",
5     "type": "MOVIE",
6     "year": "2010",
7     "score": "7.95",
8     "anime_id": 1
```

Fase 3: Monitoreo del Rendimiento

Configuración de Application Insights

Creación del servicio Application Insights en el grupo de recursos:

```
azurerms_mssql_database.db: Still modifying... [id=/subscriptions/1ba03e70-8384-45bb-8d82-ae90038ac4c7/resourceGroups/rg-animeproject-dev/providers/Microsoft.Sql/servers/dbserver-animeproject-dev/databases/animeproject_db]
Apply complete! Resources: 1 added, 1 changed, 0 destroyed.

Outputs:

app_id = "2f4bf712-426e-4694-b14c-0df6e48453cd"
instrumentation key = <sensitive>
stvn@stvn-Precision-M2800:~/Desktop/UNAH/II PAC 2025/Sistemas Expertos/Unidad II/Proyecto Redis/infraestructura_proy
ecto_redis$ terraform output instrumentation_key
"b280969b-099b-48eb-b303-d9df18285ca4"
stvn@stvn-Precision-M2800:~/Desktop/UNAH/II PAC 2025/Sistemas Expertos/Unidad II/Proyecto Redis/infraestructura_proy
ecto_redis$ ^C
stvn@stvn-Precision-M2800:~/Desktop/UNAH/II PAC 2025/Sistemas Expertos/Unidad II/Proyecto Redis/infraestructura_proy
ecto_redis$
```

Librerías/Dependencias necesarias para la herramienta de telemetría en la API:

```
pip install azure-monitor-opentelemetry
pip install opentelemetry-instrumentation-fastapi
```

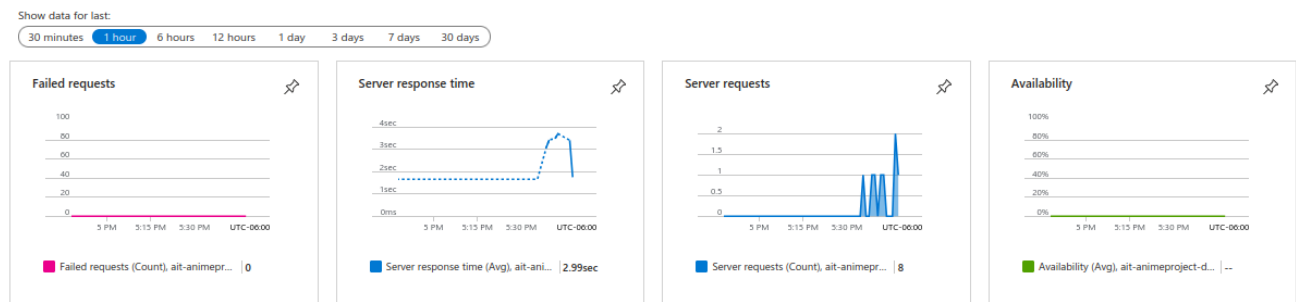

Logs generados por la herramienta Telemetry (demostración de implementación correcta):

```
X-Content-Type-Options: 'REDACTED'
'Date': 'Thu, 24 Jul 2025 23:36:07 GMT'
(env-api) stvn@stvn-Precision-M2800:~/Desktop/UNAH/II PAC 2025/Sistemas Expertos/Unida
d II/Proyecto_Redis/proyecto_redis$ uvicorn main:app
2025-07-24 17:36:12,254 - azure.core.pipeline.policies.http_logging_policy - INFO - Re
quest URL: 'https://westus-0.in.applicationinsights.azure.com//v2.1/track'
Request method: 'POST'
Request headers:
  'Content-Type': 'application/json'
  'Content-Length': '1346'
  'Accept': 'application/json'
  'x-ms-client-request-id': 'fbaafa22-68e6-11f0-88c1-2b8d4f04740b'
  'User-Agent': 'azsdk-python-azuremonitorclient/unknown Python/3.12.6 (Linux-6.8.0-
60-generic-x86_64-with-glibc2.35)'
A body is sent with the request
2025-07-24 17:36:13,024 - azure.core.pipeline.policies.http_logging_policy - INFO - Re
sponse status: 200
Response headers:
  'Transfer-Encoding': 'chunked'
  'Content-Type': 'application/json; charset=utf-8'
```

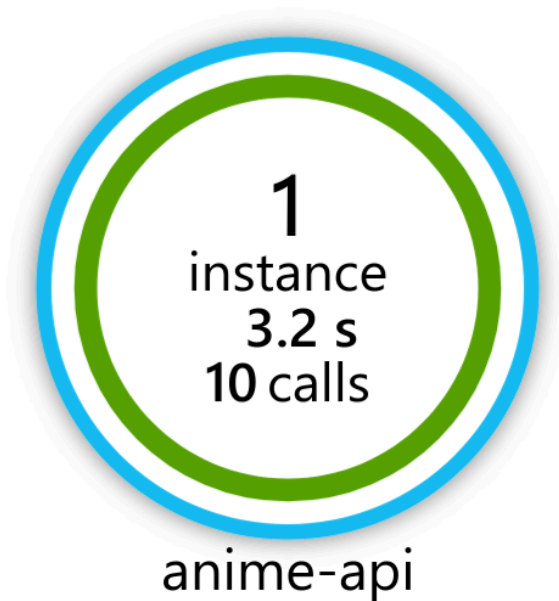
Pruebas de Carga

- Se han múltiples peticiones al Endpoint que lista todos los animes sin usar filtros.
- **Estas capturas corresponden a pruebas de la aplicación en ambiente de desarrollo.**

Gráficas de respuesta del servidor, peticiones al servidor, fallos y disponibilidad:



Tiempo promedio de respuesta de la aplicación:



Fase 4: Implementación de Caché con Redis

Integración con Redis

Librería utilizada para la implementación de Redis Caché en la API:

```
pip install redis
```

Persistencia en Caché y Reto de las Llaves Dinámicas:

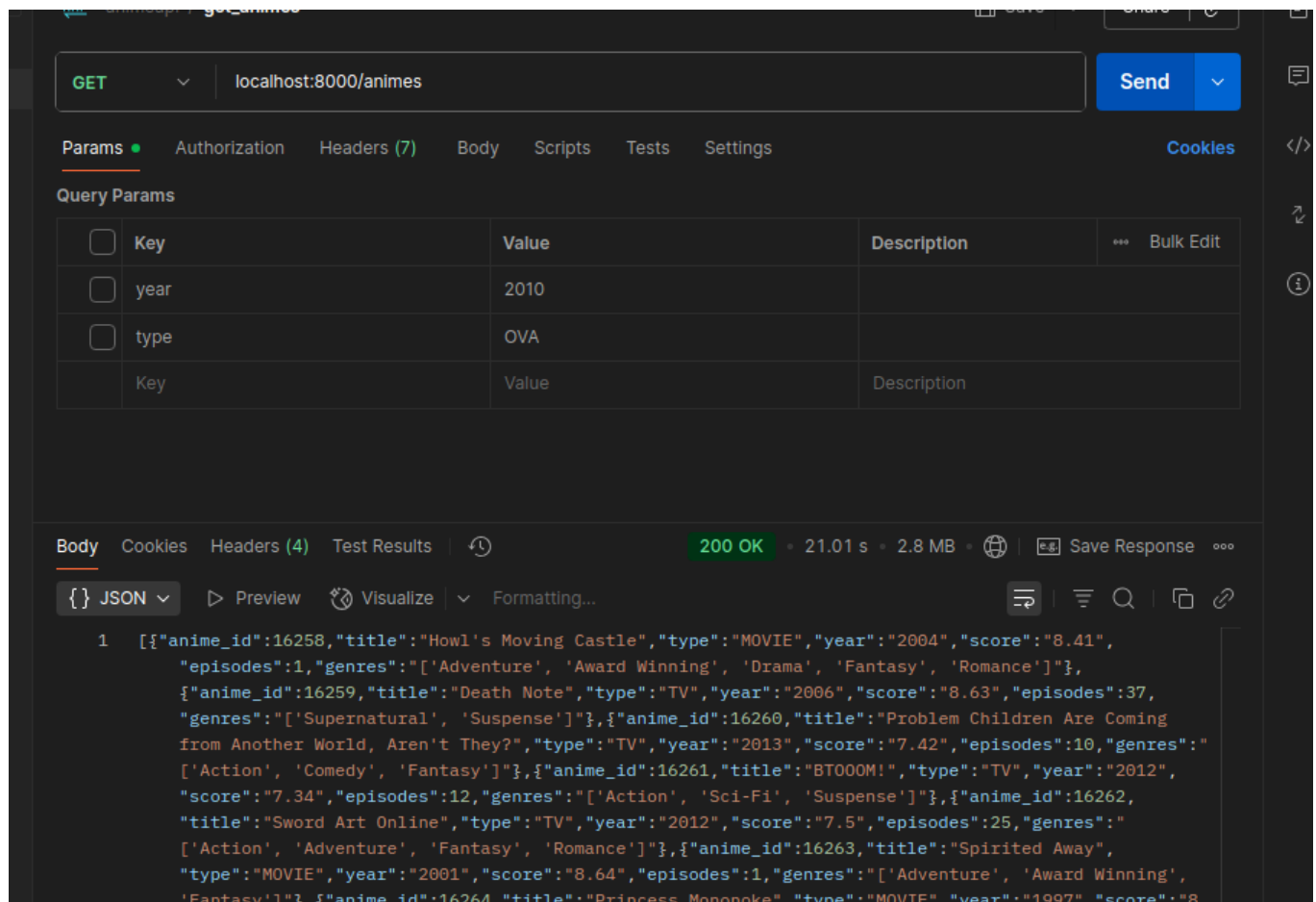
- Las siguientes capturas corresponden a pruebas en ambiente de desarrollo.

En las siguientes capturas se ha hecho una consulta y la cache debería tener data guardada.

Verificando que la caché está limpia:

```
(0.75s)  
redis-animeproject-dev.redis.cache.windows.net:6380> FLUSHALL  
OK  
redis-animeproject-dev.redis.cache.windows.net:6380> SCAN 0  
1) "0"  
2) (empty array)  
redis-animeproject-dev.redis.cache.windows.net:6380> |
```

Haciendo una Query para almacenar data en la Caché (21.01 segundos):



The screenshot shows a REST client interface with a GET request to `localhost:8000/animes`. The response is a 200 OK status with a 21.01s duration and 2.8 MB size. The response body is a JSON array of anime data.

Key	Value	Description
year	2010	
type	OVA	

```
1 [{"anime_id":16258,"title":"Howl's Moving Castle","type":"MOVIE","year":"2004","score":"8.41",
  "episodes":1,"genres":["Adventure", "Award Winning", "Drama", "Fantasy", "Romance"]},
  {"anime_id":16259,"title":"Death Note","type":"TV","year":"2006","score":"8.63","episodes":37,
  "genres":["Supernatural", "Suspense"]},
  {"anime_id":16260,"title":"Problem Children Are Coming from Another World, Aren't They?","type":"TV","year":"2013","score":"7.42","episodes":10,"genres":["Action", "Comedy", "Fantasy"]},
  {"anime_id":16261,"title":"BTOOOM!", "type":"TV","year":"2012","score":"7.34","episodes":12,"genres":["Action", "Sci-Fi", "Suspense"]},
  {"anime_id":16262,"title":"Sword Art Online","type":"TV","year":"2012","score":"7.5","episodes":25,"genres":["Action", "Adventure", "Fantasy", "Romance"]},
  {"anime_id":16263,"title":"Spirited Away","type":"MOVIE","year":"2001","score":"8.64","episodes":1,"genres":["Adventure", "Award Winning", "Fantasy"]},
  {"anime_id":16264,"title":"Princess Mononoke","type":"MOVIE","year":"1997","score":"8.8"}]
```

- En la prueba anterior se tarda un tiempo considerable por la lectura de caché, obtención de datos de la DB y la escritura en la caché.

Volviendo a consultar la data de la caché:

```
(0.73s)
redis-animeproject-dev.redis.cache.windows.net:6380> FLUSHALL
OK
redis-animeproject-dev.redis.cache.windows.net:6380> SCAN 0
1) "0"
2) (empty array)
redis-animeproject-dev.redis.cache.windows.net:6380> SCAN 0
1) "0"
2) (empty array)
redis-animeproject-dev.redis.cache.windows.net:6380> SCAN 0
1) "0"
2) 1) "animes:list:all"
redis-animeproject-dev.redis.cache.windows.net:6380>
```

Haciendo nuevamente la Query, y esto debe buscar data en la caché y tardar menos tiempo:

2.61 segundos

GET localhost:8000/animes Send

Params Authorization Headers (7) Body Scripts Tests Settings Cookies

Query Params

<input type="checkbox"/>	Key	Value	Description	...	Bulk Edit
<input type="checkbox"/>	year	2010			
<input type="checkbox"/>	type	OVA			
	Key	Value	Description		

Body Cookies Headers (4) Test Results 200 OK • 2.61 s • 2.8 MB Save Response

{ } JSON Preview Visualize

```
1  [
2    {
3      "anime_id": 16258,
4      "title": "Howl's Moving Castle",
5      "type": "MOVIE",
6      "year": "2004",
7      "score": "8.41",
8      "episodes": 1,
9      "genres": "['Adventure', 'Award Winning', 'Drama', 'Fantasy', 'Romance']"
10   },
11  ]
```

2.26 segundos:

GET localhost:8000/animes Send

Params Authorization Headers (7) Body Scripts Tests Settings Cookies

Query Params

<input type="checkbox"/>	Key	Value	Description	...	Bulk Edit
<input type="checkbox"/>	year	2010			
<input type="checkbox"/>	type	OVA			
	Key	Value	Description		

Body Cookies Headers (4) Test Results 200 OK • 2.26 s • 2.8 MB Save Response

{ } JSON Preview Visualize

```
1  [
2    {
3      "anime_id": 16258,
4      "title": "Howl's Moving Castle",
5      "type": "MOVIE",
6      "year": "2004",
7      "score": "8.41",
8      "episodes": 1,
9      "genres": "['Adventure', 'Award Winning', 'Drama', 'Fantasy', 'Romance']"
10   },
11  ]
```

Haciendo un Query con filtro de type (18.77 segundos):

GET localhost:8000/animes?type=OVA Send

Params Authorization Headers (7) Body Scripts Tests Settings Cookies

Query Params

<input type="checkbox"/>	Key	Value	Description	...	Bulk Edit
<input type="checkbox"/>	year	2010			
<input checked="" type="checkbox"/>	type	OVA			
	Key	Value	Description		

Body Cookies Headers (4) Test Results 200 OK 18.77 s 510.57 KB Save Response

{ } JSON Preview Visualize

```

1  [
2    {
3      "anime_id": 16288,
4      "title": "Final Fantasy VII: Advent Children Complete",
5      "type": "OVA",
6      "year": "2009",
7      "score": "7.89",
8      "episodes": 1,
9      "genres": ["Action", "Fantasy"]
10   },
11   ]

```

Consultando que la Key y la Data ya existe en la Cache:

```

) 1) "animes:list:all"
edis-animeproject-dev.redis.cache.windows.net:6380> SCAN 0
) "0"
) 1) "animes:list:type=OVA"
  2) "animes:list:all"
edis-animeproject-dev.redis.cache.windows.net:6380>

```

Volviento a hacer la consulta

1.90 segundos:

GET

localhost:8000/animes?type=OVA

Send

Params

Authorization

Headers (7)

Body

Scripts

Tests

Settings

Cookies

Query Params

<input type="checkbox"/>	Key	Value	Description	...	Bulk Edit
<input type="checkbox"/>	year	2010			
<input checked="" type="checkbox"/>	type	OVA			
	Key	Value	Description		

Body

Cookies

Headers (4)

Test Results

🔄

200 OK

• 1.90 s • 510.57 KB • 🌐

📄 Save Response

⋮

{ } JSON

▶ Preview

🔗 Visualize

⌵

🔄

☰

🔍

📄

🔗

```
1  [
2    {
3      "anime_id": 16288,
4      "title": "Final Fantasy VII: Advent Children Complete",
5      "type": "OVA",
6      "year": "2009",
7      "score": "7.89",
8      "episodes": 1,
9      "genres": "['Action', 'Fantasy']"
10   },
11   ]
```

6.96 segundos:

The screenshot shows a REST client interface with a GET request to `localhost:8000/animes?type=OVA`. The response is a 200 OK status with a JSON body. The JSON body contains an array of objects, with the first object being:

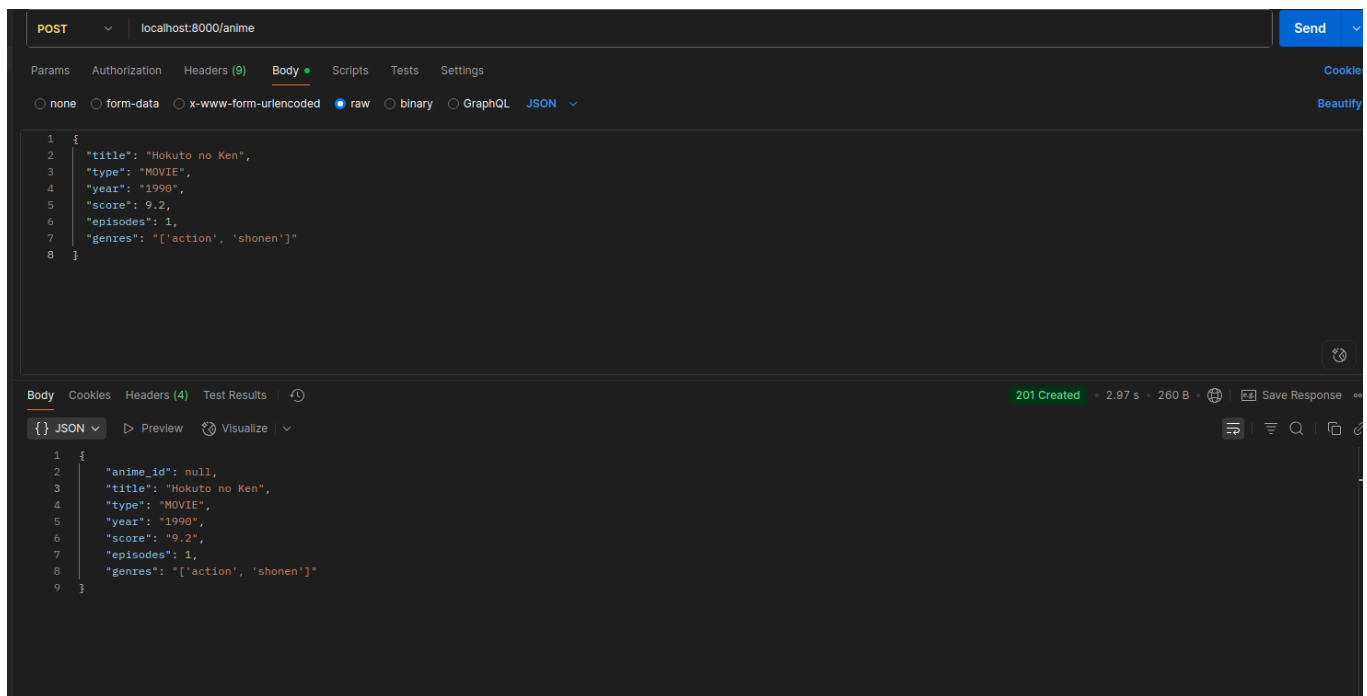
```
{  "anime_id": 16288,  "title": "Final Fantasy VII: Advent Children Complete",  "type": "OVA",  "year": "2009",  "score": "7.89",  "episodes": 1,  "genres": ["Action", "Fantasy"]}
```

Fase 5: Invalidación de Caché

Endpoint de Creación

- Al crear un nuevo registro en la tabla de la base de datos, los Keys de la Caché Redis relacionados con la data insertada deben ser eliminados.

Creando un nuevo anime, insertando el Type:



En la caché deberían estar borrado la key de all

```
2) "animas:list:all"
redis-animeproject-dev.redis.cache.windows.net:6380> SCAN 0
1) "0"
2) 1) "animas:list:type=OVA"
redis-animeproject-dev.redis.cache.windows.net:6380>
```

Insertando en la DB con el type guardado en la cache y volviendo a verificar en la cache:

```
2) 1) "animas:list:type=OVA"
redis-animeproject-dev.redis.cache.windows.net:6380> SCAN 0
1) "0"
2) (empty array)
redis-animeproject-dev.redis.cache.windows.net:6380>
```

Vuelvo a hacer una consulta con el filtro type, se tarda 4.24 segundos porque ya no existe data en la cache, entonces hace la consulta y vuelve a escribir en la cache:

animeapi / **get_animes** Save Share

GET localhost:8000/animes?type=OVA Send

Params • Authorization Headers (7) Body Scripts Tests Settings Cookies

Query Params

<input type="checkbox"/> Key	Value	Description
<input type="checkbox"/> year	2010	
<input checked="" type="checkbox"/> type	OVA	
Key	Value	Description

Body Cookies Headers (4) Test Results 200 OK • 4.24 s • 510.7 KB Save Response

JSON Preview Visualize

```
1  [
2    {
3      "anime_id": 16288,
4      "title": "Final Fantasy VII: Advent Children Complete",
5      "type": "OVA",
6      "year": "2009",
7      "score": "7.89",
8      "episodes": 1,
9      "genres": ["Action", "Fantasy"]
10   },
11   {
12     "anime_id": 16318,
13     "title": "Samurai X: Trust and Betrayal",
14     "type": "OVA",
15     "year": "1999",
```

Obteniendo data de la cache:

animeapi / **get_animes** Save Share

GET localhost:8000/animes?type=OVA Send

Params • Authorization Headers (7) Body Scripts Tests Settings Cookies

Query Params

<input type="checkbox"/> Key	Value	Description
<input type="checkbox"/> year	2010	
<input checked="" type="checkbox"/> type	OVA	
Key	Value	Description

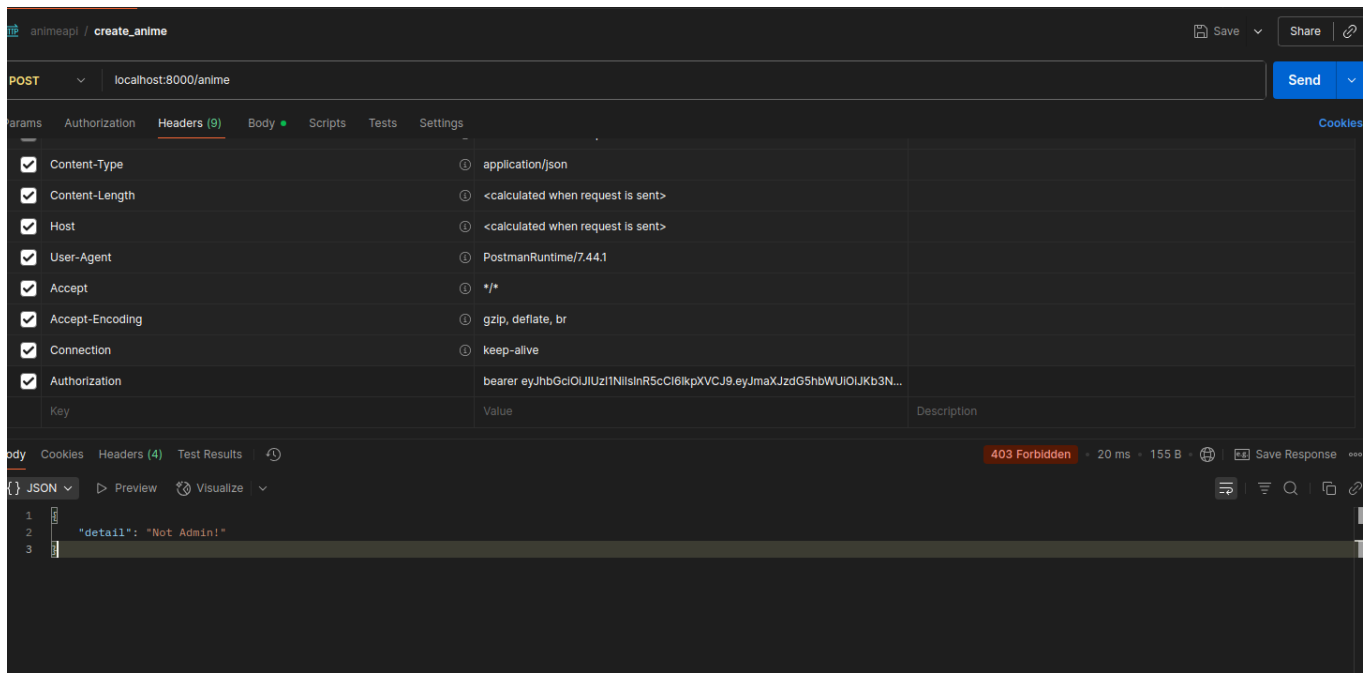
Body Cookies Headers (4) Test Results 200 OK • 1.94 s • 510.7 KB Save Response

JSON Preview Visualize

```
1  [
2    {
3      "anime_id": 16288,
4      "title": "Final Fantasy VII: Advent Children Complete",
5      "type": "OVA",
6      "year": "2009",
7      "score": "7.89",
8      "episodes": 1,
9      "genres": ["Action", "Fantasy"]
10   },
11   {
12     "anime_id": 16318,
13     "title": "Samurai X: Trust and Betrayal",
14     "type": "OVA",
15     "year": "1999",
```

Lógica de Invalidación

Intentando crear con un usuario no Admin:



Verificación del Flujo

Verificando la caché:



Realizando petición de todos los animes de la DB (7.53 segundos):

GET localhost:8000/animes

Headers (7):

- Postman-Token: <calculated when request is sent>
- Host: <calculated when request is sent>
- User-Agent: PostmanRuntime/7.44.1
- Accept: */*
- Accept-Encoding: gzip, deflate, br
- Connection: keep-alive
- Authorization: bearer eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJmaXJzdG5hbWUOIjF3c3R...

Body (JSON):

```
1 [
2   {
3     "anime_id": 16258,
4     "title": "Howl's Moving Castle",
5     "type": "MOVIE",
6     "year": "2004",
7     "score": "8.41",
8     "episodes": 1,
9     "genres": ["Adventure", "Award Winning", "Drama", "Fantasy", "Romance"]}
10  ],
11  {
12    "anime_id": 16259,
13    "title": "Death Note",
14    "type": "TV",
15    "year": "2006",
```

Verificando la cache:

```
2) (empty array)
redis-animeproject-dev.redis.cache.windows.net:6380> SCAN 0
1) "0"
2) 1) "animes:list:all"
redis-animeproject-dev.redis.cache.windows.net:6380>
```

Obteniendo data de la cache (2.51 segundos):

GET localhost:8000/animes

Headers (7):

- Postman-Token: <calculated when request is sent>
- Host: <calculated when request is sent>
- User-Agent: PostmanRuntime/7.44.1
- Accept: */*
- Accept-Encoding: gzip, deflate, br
- Connection: keep-alive
- Authorization: bearer eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJmaXJzdG5hbWUOIjF3c3R...

Body (JSON):

```
1 [
2   {
3     "anime_id": 16258,
4     "title": "Howl's Moving Castle",
5     "type": "MOVIE",
6     "year": "2004",
7     "score": "8.41",
8     "episodes": 1,
9     "genres": ["Adventure", "Award Winning", "Drama", "Fantasy", "Romance"]}
10  ],
11  {
12    "anime_id": 16259,
13    "title": "Death Note",
14    "type": "TV",
15    "year": "2006",
```

Obteniendo data con filtro de type (3.72 segundos):

GET localhost:8000/animes?type=OVA

Params Authorization Headers (7) Body Scripts Tests Settings Cookies

Query Params

Key	Value	Description
<input type="checkbox"/> year	2010	
<input checked="" type="checkbox"/> type	OVA	
<input type="checkbox"/> Key	Value	Description

Body Cookies Headers (4) Test Results

200 OK · 3.72 s · 510.57 KB Save Response

JSON Preview Visualize

```
1 {
2   {
3     "anime_id": 16288,
4     "title": "Final Fantasy VII: Advent Children Complete",
5     "type": "OVA",
6     "year": "2009",
7     "score": "7.89",
8     "episodes": 1,
9     "genres": ["Action", "Fantasy"]
10  },
11 }
12 {
13   "anime_id": 16318,
14   "title": "Samurai X: Trust and Betrayal",
15   "type": "OVA",
16   "year": "1999",
```

Verificando inserción en la cache:

```
2) 1) animes:llst:all
redis-animeproject-dev.redis.cache.windows.net:6380> SCAN 0
1) "0"
2) 1) "animes:list:type=OVA"
   2) "animes:list:all"
redis-animeproject-dev.redis.cache.windows.net:6380> █
```

Obteniendo data de la caché (1.48 segundos):

GETlocalhost:8000/animes?type=OVA

Send

Params

AuthorizationHeaders (7)BodyScriptsTestsSettings

Cookie

Query Params

<input type="checkbox"/> Key	Value	Description	⋮ Bulk Edit
<input type="checkbox"/> year	2010		
<input checked="" type="checkbox"/> type	OVA		
Key	Value	Description	

Body

Cookies

Headers (4)

Test Results

🔄

200 OK

1.48 s

510.57 KB

👤

📄 Save Response

⋮

{}

JSON

Preview

Visualize

⌵

1

[

2

{

3

"anime_id": 16288,

4

"title": "Final Fantasy VII: Advent Children Complete",

5

"type": "OVA",

6

"year": "2009",

7

"score": "7.89",

8

"episodes": 1,

9

"genres": ["Action", "Fantasy"]

10

},

11

{

12

"anime_id": 16318,

13

"title": "Samurai X: Trust and Betrayal",

14

"type": "OVA",

15

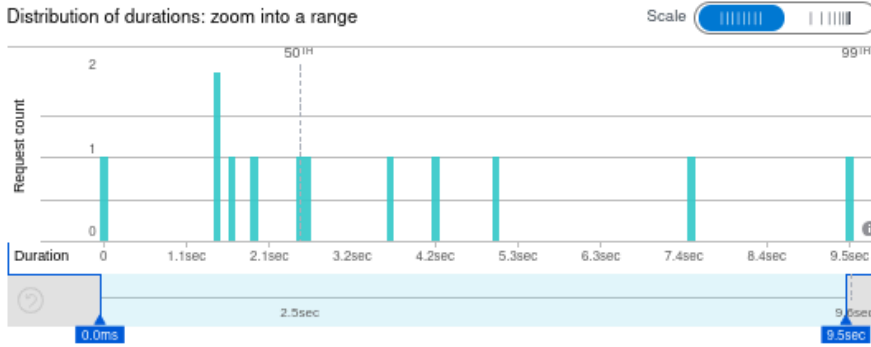
"year": "1999",

Métricas de la API usando Application Insights

Métricas con los tiempos de respuesta de la API:

GET /animes

Distribution of durations: zoom into a range



Insights (1)



50% COMMON PROPERTIES:

resultCode, client_OS, performanceBucket, cloud_RoleName, cloud_RoleInstance

Drill into...

12 Samples

Suggested

7/24/2025, 10:20:56 PM

GET /animes

Duration: 1.7 s Response code: 200



Sort by @

All

Relevance

7/24/2025, 10:20:56 PM

GET /animes

Duration: 1.7 s Response code: 200



7/24/2025, 10:25:28 PM

GET /animes

Duration: 4.2 s Response code: 200



7/24/2025, 10:16:29 PM

GET /animes

Duration: 1 ms Response code: 401



7/24/2025, 10:19:26 PM

GET /animes

Duration: 3.7 s Response code: 200



7/24/2025, 10:20:53 PM

GET /animes

Duration: 1.5 s Response code: 200



7/24/2025, 10:18:23 PM

GET /animes

Duration: 2.6 s Response code: 200



7/24/2025, 10:16:55 PM

GET /animes

Duration: 7.5 s Response code: 200



7/24/2025, 10:18:31 PM

GET /animes

Duration: 2.5 s Response code: 200



7/24/2025, 10:20:59 PM

GET /animes

Duration: 1.5 s Response code: 200



7/24/2025, 10:20:46 PM

GET /animes

Duration: 5.0 s Response code: 200



7/24/2025, 10:18:10 PM

GET /animes

Duration: 9.6 s Response code: 200



7/24/2025, 10:26:36 PM

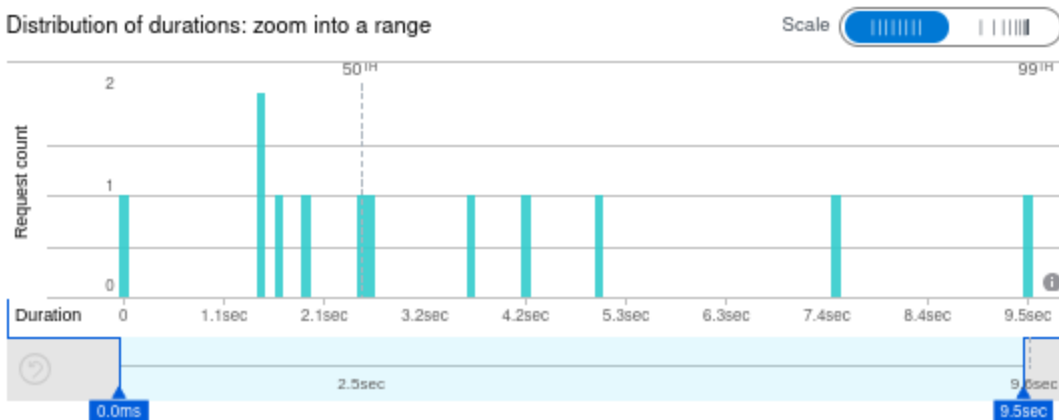
GET /animes

Duration: 1.9 s Response code: 200



GET /animes

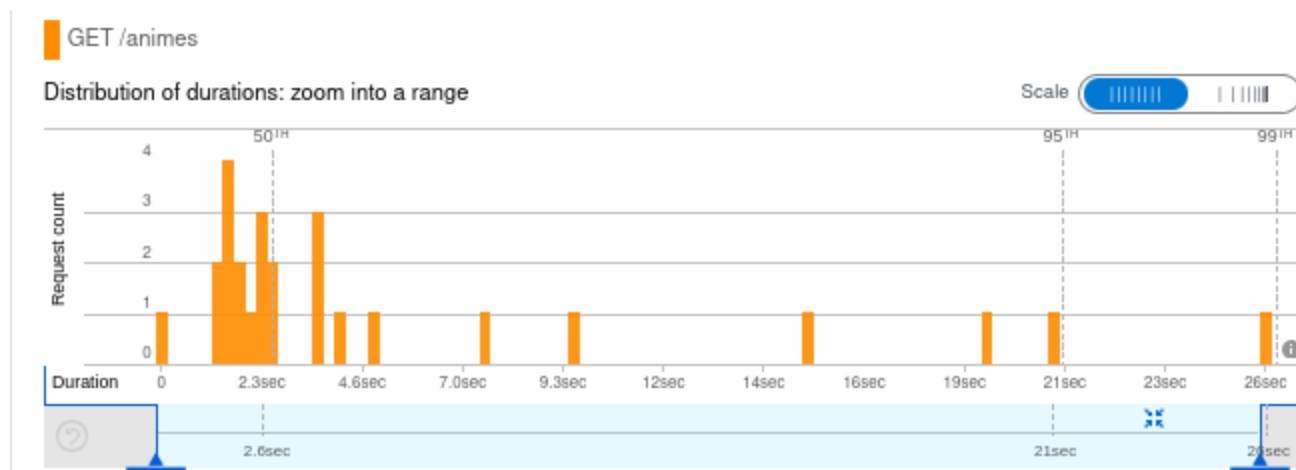
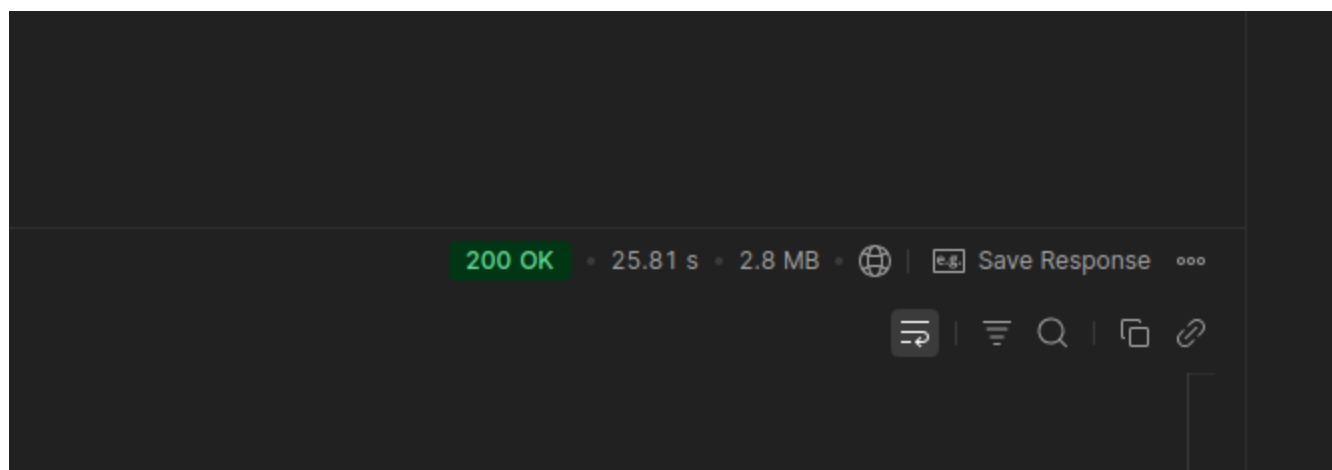
Distribution of durations: zoom into a range



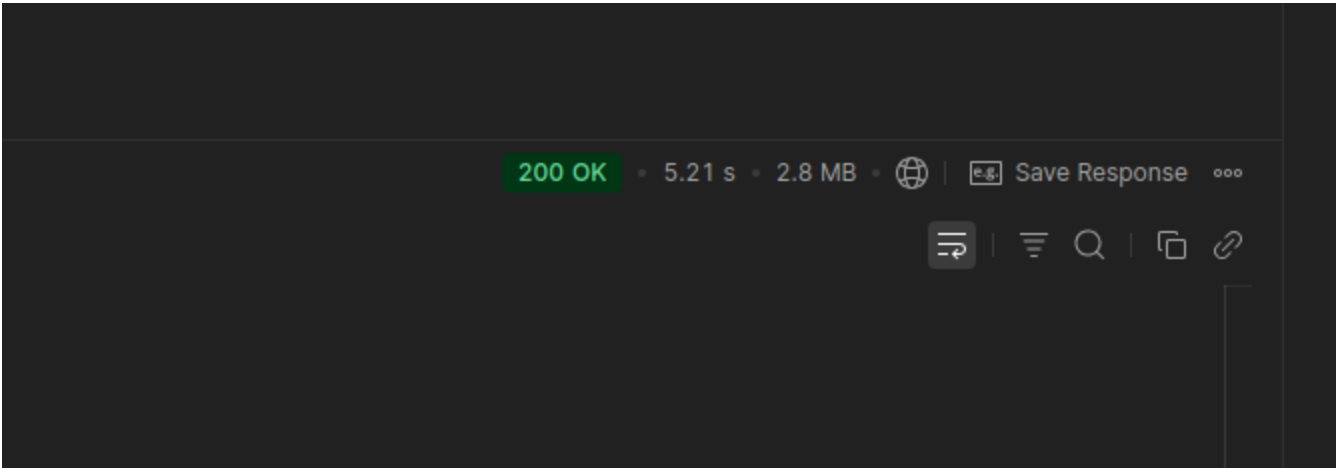
Insights (1)

OPERATION NAME	DURATION (AVG)	COUNT	PIN
Overall	3.12 sec	18	
GET /animés	3.48 sec	12	
POST /signup	3.31 sec	1	
POST /signin	2.53 sec	2	
POST /anime	1.99 sec	3	

Sin la cache, los tiempos de respuesta estaban en una media de 18 segundos:



En este ejemplo leyó de la caché:



Fase 6: Despliegue en la Nube con Docker

Containerización

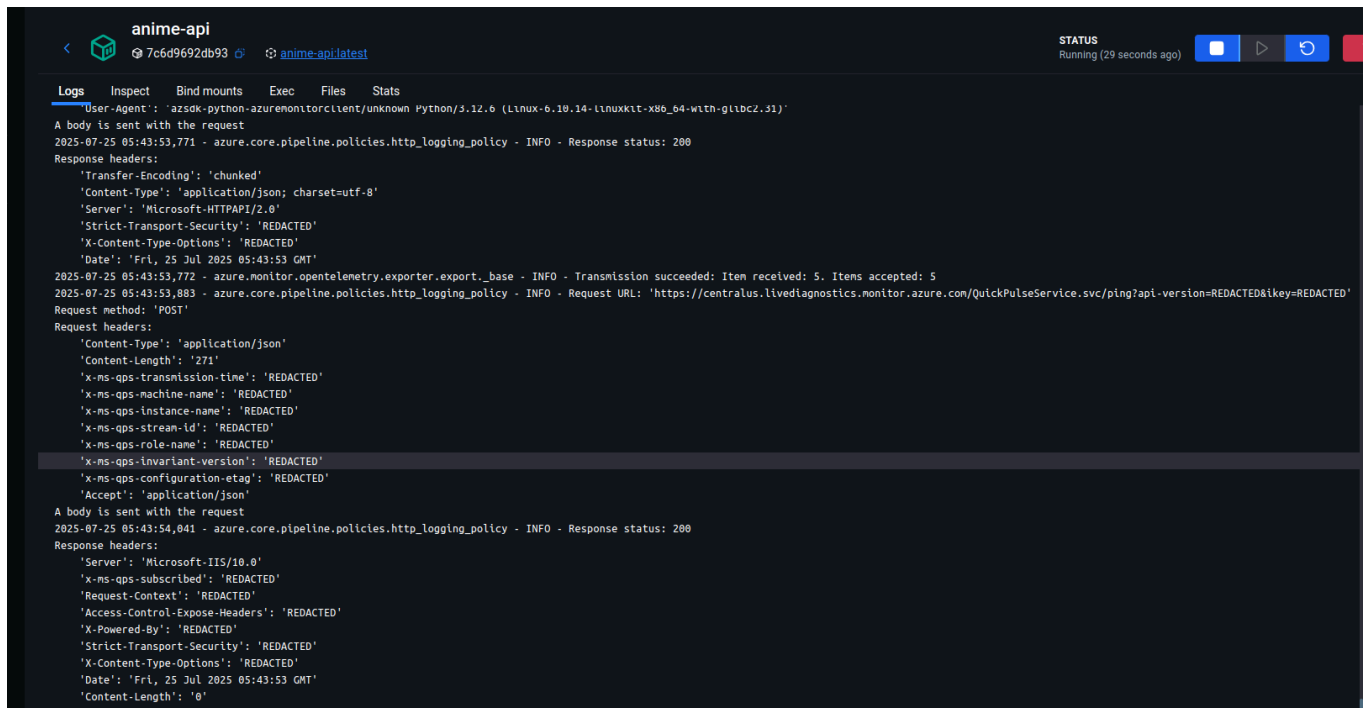
Creación de imagen Docker:

```
(env-api) stvn@stvn-Precision-M2800:~/Desktop/UNAH/II PAC 2025/Sistemas Expertos/Unidad II/Proyecto_Redis/proyecto_
• redis$ docker buildx build --platform linux/amd64 -t anime-api:latest . --load
[+] Building 957.8s (13/13) FINISHED                                docker:desktop-linux
=> [internal] load build definition from Dockerfile                0.2s
=> => transferring dockerfile: 1.41kB                             0.1s
=> [internal] load metadata for docker.io/library/python:3.12.6-slim-bullseye 4.1s
=> [auth] library/python:pull token for registry-1.docker.io      0.0s
=> [internal] load .dockerignore                                  0.6s
=> => transferring context: 2B                                     0.0s
=> [1/7] FROM docker.io/library/python:3.12.6-slim-bullseye@sha256:6fe70237cff8ad7c0a91b992cb7cb454187dfd2e 0.4s
=> => resolve docker.io/library/python:3.12.6-slim-bullseye@sha256:6fe70237cff8ad7c0a91b992cb7cb454187dfd2e 0.4s
=> [internal] load build context                                  31.3s
=> => transferring context: 125.08MB                             30.2s
=> CACHED [2/7] WORKDIR /app                                     0.0s
=> [3/7] RUN apt-get update && apt-get install -y curl apt-transport-https gnupg gcc g++ make && 601.9s
=> [4/7] COPY requirements.txt .                                  1.8s
=> [5/7] RUN pip install --no-cache-dir -r requirements.txt      208.4s
=> [6/7] COPY . .                                                11.3s
=> [7/7] RUN test -f .env && rm .env || echo "No .env file found" 3.5s
=> exporting to image                                           121.6s
=> => exporting layers                                           75.5s
=> => exporting manifest sha256:a63e7b7dbaf986d4bb9f5996252bf06546ac6d8c19c9dce26fcaa0abd2a33a9e 0.3s
=> => exporting config sha256:c466fdcd1f21a61737282067c0c704e9c20263310a745c08fb942c8be82d8494 0.3s
=> => exporting attestation manifest sha256:1cfc523e632aba098a0e37d43915864acaad9a450070481f9573d782fe63bb3 0.9s
=> => exporting manifest list sha256:3915b82c2ce151b0cf4fd5e7ff64c5a39866bdfc3624a724cac2257cd9235d77 0.4s
=> => naming to docker.io/library/anime-api:latest              0.0s
=> => unpacking to docker.io/library/anime-api:latest           43.5s

View build details: docker-desktop://dashboard/build/desktop-linux/desktop-linux/2pb7r6vge6lp5zjs72u69kjc0
(env-api) stvn@stvn-Precision-M2800:~/Desktop/UNAH/II PAC 2025/Sistemas Expertos/Unidad II/Proyecto_Redis/proyecto_
• redis$
```

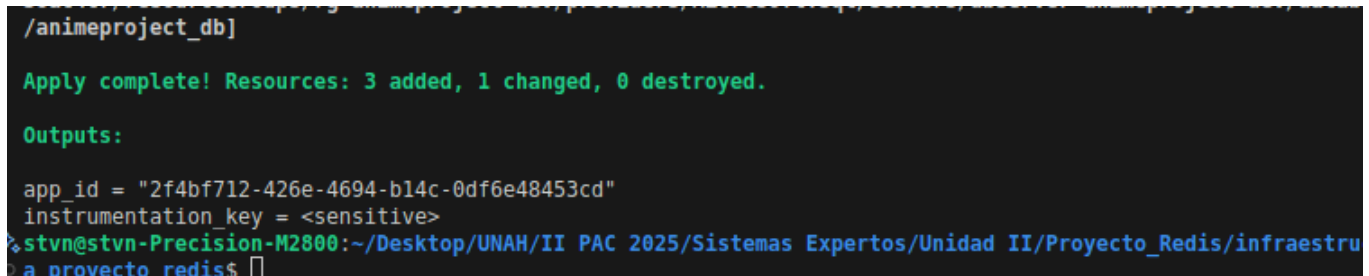
<input type="checkbox"/>	<input type="radio"/>	api-e-commerce	latest	a913
<input type="checkbox"/>	<input checked="" type="radio"/>	<none>	<none>	7546
<input type="checkbox"/>	<input type="radio"/>	anime-api	latest	3915

Contenedor del proyecto en ejecución:

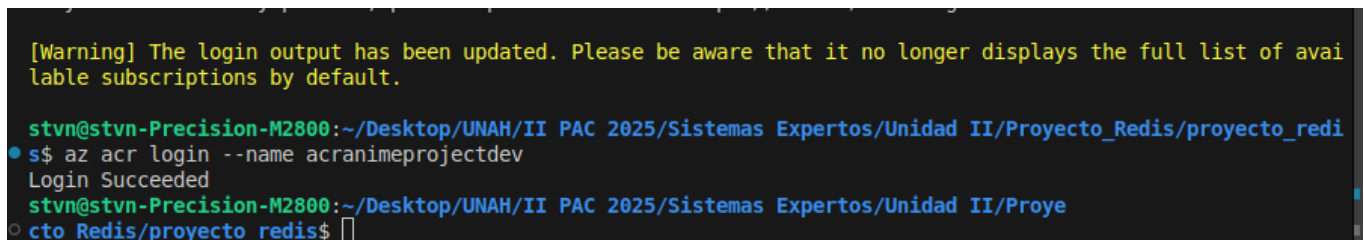


Release en la Nube

Creación del ACR y Webapp de Azure:



Publicando Imagen en el ACR:














```
stvn@stvn-Precision-M2800:~/Desktop/UNAH/II PAC 2025/Sistemas Expertos/Unidad II/Proye
cto_Redis/proyecto_redis$ docker tag anime-api:latest acranimeprojectdev.azurecr.io/anime-api:0.0.1
stvn@stvn-Precision-M2800:~/Desktop/UNAH/II PAC 2025/Sistemas Expertos/Unidad II/Proyecto_Redis/proyecto_redi
s$ docker tag anime-api:latest acranimeprojectdev.azurecr.io/anime-api:latest
stvn@stvn-Precision-M2800:~/Desktop/UNAH/II PAC 2025/Sistemas Expertos/Unidad II/Proyecto_Redis/proyecto_redi
s$
```

<input type="checkbox"/>		acranimeprojectdev.azurecr.io/anime-api	0.0.1	3915b
<input type="checkbox"/>		acranimeprojectdev.azurecr.io/anime-api	latest	3915b
<input type="checkbox"/>		anime-api	latest	3915b
<input type="checkbox"/>		acra cafeteriaunahenv.azurecr.io/cafe	0.1.0	a013d

```
c7e163b4d8b5: Pushed
cc97a315af52: Pushed
0.0.1: digest: sha256:3915b82c2ce151b0cf4fd5e7ff64c5a39866bdfc3624a724cac2257cd9235d77 size: 856
stvn@stvn-Precision-M2800:~/Desktop/UNAH/II PAC 2025/Sistemas Expertos/Unidad II/Proyecto_Redis/proyecto_redi
s$ docker push acranimeprojectdev.azurecr.io/anime-api:latest
The push refers to repository [acranimeprojectdev.azurecr.io/anime-api]
cc97a315af52: Layer already exists
16a0c2e41fff: Layer already exists
e454a50f2ef7: Layer already exists
290e4b362485: Layer already exists
888e2d240633: Layer already exists
41582a253885: Already exists
a53842d603c4: Layer already exists
fa0650a893c2: Layer already exists
6f53d744adf7: Layer already exists
7c8d675855f8: Layer already exists
c7e163b4d8b5: Layer already exists
latest: digest: sha256:3915b82c2ce151b0cf4fd5e7ff64c5a39866bdfc3624a724cac2257cd9235d77 size: 856
stvn@stvn-Precision-M2800:~/Desktop/UNAH/II PAC 2025/Sistemas Expertos/Unidad II/Proyecto_Redis/proyecto_redi
s$
```

Tags ↑↓	Digest ↑↓	Last modified
latest	sha256:3915b82c2ce151b0cf4fd5e7ff64c5a39866bdfc3624a724cac2257cd9235d77	7/25/2025, 10:29 AM CST
0.0.1	sha256:3915b82c2ce151b0cf4fd5e7ff64c5a39866bdfc3624a724cac2257cd9235d77	7/25/2025, 10:28 AM CST

Vinculando ACR con la Webapp

Name	Value	Deployment slot setting	Source	D
DOCKER_REGISTRY_SERVER_P...	 Show value		App Service	
DOCKER_REGISTRY_SERVER_U...	 Show value		App Service	
DOCKER_REGISTRY_SERVER_U...	 Show value		App Service	
FIREBASE_API_KEY	 Show value		App Service	
SECRET_KEY	 Show value		App Service	
SQL_DATABASE	 Show value		App Service	
SQL_DRIVER	 Show value		App Service	
SQL_PASSWORD	 Show value		App Service	
SQL_SERVER	 Show value		App Service	
SQL_USERNAME	 Show value		App Service	
WEBSITES_PORT	 Show value		App Service	

Registry settings

Container type	<input checked="" type="radio"/> Single container <input type="radio"/> Docker Compose
Image source *	<input checked="" type="radio"/> Azure Container Registry <input type="radio"/> Other container registries
Subscription	<div>Azure for Students</div>
Registry *	<div>acranimeprojectdev</div>
Authentication *	<input type="radio"/> Managed Identity <input checked="" type="radio"/> Admin Credentials
Image *	<div>anime-api</div>
Image tag *	<div>latest</div>
Startup command	<div></div>
Continuous deployment	<input checked="" type="checkbox"/>
Webhook URL	<div>.....</div>

Pruebas en Producción

← → ↺

🔒 api-animeproject-dev.azurewebsites.net/docs

☆ E 📄 ☰

Anime API

0.0.1 OAS 3.1

[/openapi.json](#)

Proyecto con implementación de Redis

default

^

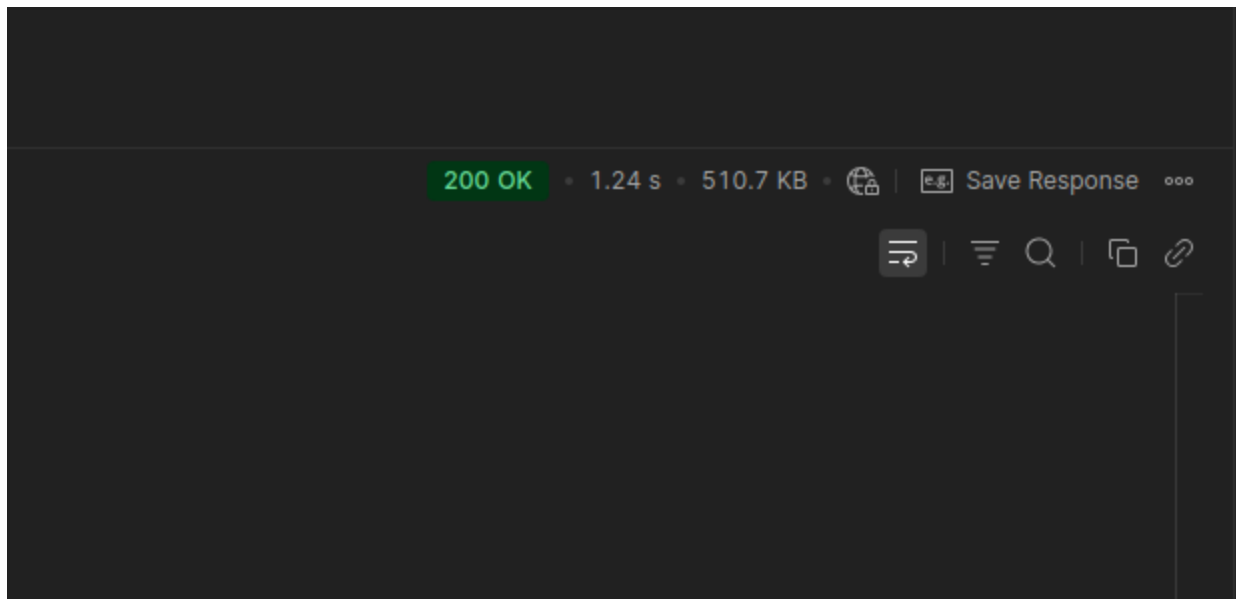
GET /health Api Health

GET / Home



Probando REDIS en el proyecto desplegado

1.24 segundos:



878 milisegundos

```
200 OK • 878 ms • 510.7 KB • Save Response ...

9","episodes":1,"genres":["Action', 'Fantasy']"}, {"anime_id":16318,
ction', 'Drama', 'Romance']"}, {"anime_id":16321,"title":"FLCL","type":"OVA",
]"}, {"anime_id":16359,"title":"Hellsing Ultimate","type":"OVA","year":"2006",
ross Zero","type":"OVA","year":"2002","score":"7.66","episodes":5,"genres":"
e":"7.32","episodes":1,"genres":["Drama', 'Sci-Fi']"}, {"anime_id":16399,
res":["Slice of Life']"}, {"anime_id":16408,"title":"Black Lagoon: Roberta's
,"title":"Black?Rock Shooter (OVA)","type":"OVA","year":"2010","score":"7.02",
Nemuri no Mori - Break on the Sky","type":"OVA","year":"2010","score":"7.44",
dicate the Super Saiyans" "type":"OVA" "year":"2010" "score":"6.64"
```

Guardando información en Redis desde el proyecto Desplegado

```
redis-animeproject-dev.redis.cache.windows.net:6380> FLUSHALL
OK
redis-animeproject-dev.redis.cache.windows.net:6380> SCAN 0
1) "0"
2) (empty array)
redis-animeproject-dev.redis.cache.windows.net:6380> SCAN 0
1) "0"
2) 1) "animes:list:type=MOVIE"
   2) "animes:list:type=OVA"
   3) "animes:list:all"
redis-animeproject-dev.redis.cache.windows.net:6380>
```

Body Cookies Headers (4) Test Results

{ } JSON Preview Visualize

Comando para conexión al servicio de Redis desde Bash:

```
redis-cli -h redis-animeproject-dev.redis.cache.windows.net -p 6380 -a
'TXcmEJAUT9cHiKq3193fG7szLI04yjlDEAzCaJPwoGk=' --tls
```

Repositorios del Proyecto

Proyecto documentado en mi portafolio:

- <https://estiven-mejia-portfolio.pages.dev/projects/project-7/>

Repositorios del proyecto:

- <https://github.com/Estvn/infraestructura-projecto-redis>
- <https://github.com/Estvn/projecto-redis>

Enlace a la API:

- <https://api-animeproject-dev.azurewebsites.net/docs>