

```

camilobrito@camilobrito-VirtualBox:~/Desktop/FastApi_CamiloBrito$ pip install -r requirements.txt
Defaulting to user installation because normal site-packages is not writeable
Collecting fastapi<0.69.0,>=0.68.0
  Downloading fastapi-0.68.2-py3-none-any.whl (52 kB)
    52.4/52.4 KB 1.1 MB/s eta 0:00:00
Collecting pydantic<2.0.0,>=1.8.0
  Downloading pydantic-1.10.13-cp310-cp310-manylinux_2_17_x86_64.manylinux2014_x86_64.whl (3.1 MB)
    3.1/3.1 MB 5.1 MB/s eta 0:00:00
Collecting uvicorn<0.16.0,>=0.15.0
  Downloading uvicorn-0.15.0-py3-none-any.whl (54 kB)
    54.4/54.4 KB 3.1 MB/s eta 0:00:00
Collecting starlette==0.14.2
  Downloading starlette-0.14.2-py3-none-any.whl (60 kB)
    60.6/60.6 KB 2.0 MB/s eta 0:00:00
Requirement already satisfied: typing-extensions>=4.2.0 in /home/camilobrito/.local/lib/python3.10/site-packages (from pydantic<2.0.0,>=1.8.0->-r requirements.txt (line 2)) (4.8.0)
Requirement already satisfied: asgiref>=3.4.0 in /usr/lib/python3/dist-packages (from uvicorn<0.16.0,>=0.15.0->-r requirements.txt (line 3)) (3.5.0)
Requirement already satisfied: h11>=0.8 in /home/camilobrito/.local/lib/python3.10/site-packages (from uvicorn<0.16.0,>=0.15.0->-r requirements.txt (line 3)) (0.14.0)
Requirement already satisfied: click>=7.0 in /usr/lib/python3/dist-packages (from uvicorn<0.16.0,>=0.15.0->-r requirements.txt (line 3)) (8.0.3)
Installing collected packages: uvicorn, starlette, pydantic, fastapi
  Attempting uninstall: uvicorn
    Found existing installation: uvicorn 0.23.2
    Uninstalling uvicorn-0.23.2:
      Successfully uninstalled uvicorn-0.23.2
Successfully installed fastapi-0.68.2 pydantic-1.10.13 starlette-0.14.2 uvicorn-0.15.0
camilobrito@camilobrito-VirtualBox:~/Desktop/FastApi_CamiloBrito$

```

Estructura de carpetas según la documentación de FastApi

```

FASTAPI_CAMILOBR...  app > main.py > calcular_interes_compuesto
12
13 @app.get("/items/{item_id}")
14 def read_item(item_id: int, q: Union[str, None] = None):
15     return {"item_id": item_id, "q": q}
16
17 @app.get("/interes-simple")
18 def calcular_interes_simple(principal: float, tasa: float, ti
19     # Realiza el cálculo de interés simple aquí
20     interes = principal * (tasa / 100) * tiempo

PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS
bash + v [ ] [ ] ... ^

run -d --name mycontainer2 -p 80:80 fastapi devops
640633882f943a1d7eaf87651cf09fa7c0f26daa448bde6feac5503f1189f57
● camilobrito@camilobrito-VirtualBox:~/Desktop/FastApi_CamiloBrito$ sudo docker
build -t fastapi_dev .
[+] Building 1.75s (10/10) FINISHED                                docker:default
=> [internal] load build definition from Dockerfile                0.1s
=> => transferring dockerfile: 296B                                0.1s
=> [internal] load .dockerignore                                  0.1s
=> => transferring context: 2B                                       0.0s
=> [internal] load metadata for docker.io/library/python:3.9      1.0s
=> [1/5] FROM docker.io/library/python:3.9@sha256:031b2a713079b2436e6c 0.0s
=> [internal] load build context                                  0.0s
=> => transferring context: 908B                                     0.0s
=> CACHED [2/5] WORKDIR /code                                       0.0s
=> CACHED [3/5] COPY ./requirements.txt /code/requirements.txt     0.0s
=> CACHED [4/5] RUN pip install --no-cache-dir --upgrade -r /code/requ 0.0s
=> [5/5] COPY ./app /code/app                                       0.2s
=> exporting to image                                              0.1s
=> => exporting layers                                              0.1s
=> => writing image sha256:8b2f1fda7dc0c4c0fb6e9e9b62754d8b0a3eea7d99d 0.0s
=> => naming to docker.io/library/fastapi_dev                      0.0s
● camilobrito@camilobrito-VirtualBox:~/Desktop/FastApi_CamiloBrito$ sudo docker
run -d --name mycontainer3 -p 80:80 fastapi_dev

```

Creación de la imagen

```
camilobrito@camilobrito-VirtualBox:~/Desktop/FastApi_CamiloBrito$ sudo docker
build -t fastapi_dev .
[+] Building 1.7s (10/10) FINISHED                                docker:default
=> [internal] load build definition from Dockerfile                0.1s
=> => transferring dockerfile: 296B                                0.1s
=> [internal] load .dockerignore                                  0.1s
=> => transferring context: 2B                                       0.0s
=> [internal] load metadata for docker.io/library/python:3.9      1.0s
=> [1/5] FROM docker.io/library/python:3.9@sha256:031b2a713079b2436e6c 0.0s
=> [internal] load build context                                  0.0s
=> => transferring context: 908B                                     0.0s
=> CACHED [2/5] WORKDIR /code                                     0.0s
=> CACHED [3/5] COPY ./requirements.txt /code/requirements.txt    0.0s
=> CACHED [4/5] RUN pip install --no-cache-dir --upgrade -r /code/requ 0.0s
=> [5/5] COPY ./app /code/app                                    0.2s
=> exporting to image                                             0.1s
=> => exporting layers                                              0.1s
=> => writing image sha256:8b2f1fda7dc0c4c0fb6e9e9b62754d8b0a3eea7d99d 0.0s
=> => naming to docker.io/library/fastapi_dev                     0.0s
camilobrito@camilobrito-VirtualBox:~/Desktop$ sudo docker
```

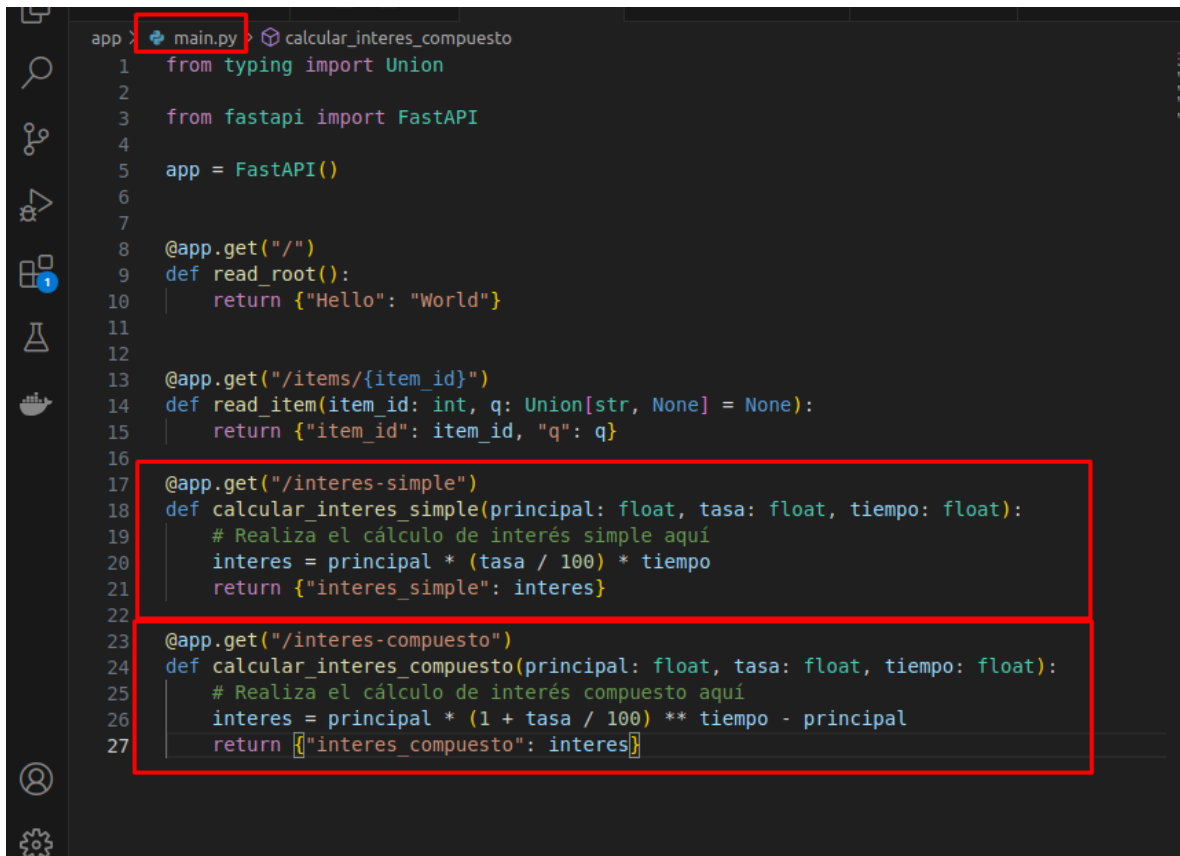
Creación del contenedor

```
camilobrito@camilobrito-VirtualBox:~/Desktop/FastApi_CamiloBrito$ sudo docker
run -d --name myconta -p 80:80 fastapi_dev
082129d91a18f300a12851673094f74e6e6f374116cfe7fdf06340b96080555a
camilobrito@camilobrito-VirtualBox:~/Desktop/FastApi_CamiloBrito$
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS
082129d91a18	fastapi_dev	"uvicorn app.main:ap..."	2 minutes ago	Up 2 minutes	0.0.0.0:80->80/tcp,

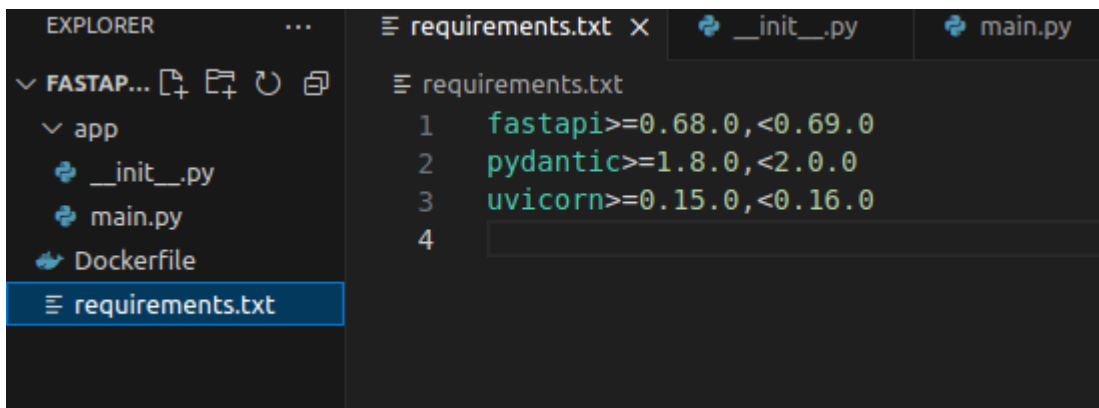
```
camilobrito@camilobrito-VirtualBox:~$
```

Medito Main donde se agregaron los dos endpoint adicionales de interés simple e interés compuesto.



```
app > main.py > calcular_interes_compuesto
1  from typing import Union
2
3  from fastapi import FastAPI
4
5  app = FastAPI()
6
7
8  @app.get("/")
9  def read_root():
10     return {"Hello": "World"}
11
12
13  @app.get("/items/{item_id}")
14  def read_item(item_id: int, q: Union[str, None] = None):
15     return {"item_id": item_id, "q": q}
16
17  @app.get("/interes-simple")
18  def calcular_interes_simple(principal: float, tasa: float, tiempo: float):
19     # Realiza el cálculo de interés simple aquí
20     interes = principal * (tasa / 100) * tiempo
21     return {"interes_simple": interes}
22
23  @app.get("/interes-compuesto")
24  def calcular_interes_compuesto(principal: float, tasa: float, tiempo: float):
25     # Realiza el cálculo de interés compuesto aquí
26     interes = principal * (1 + tasa / 100) ** tiempo - principal
27     return {"interes_compuesto": interes}
```

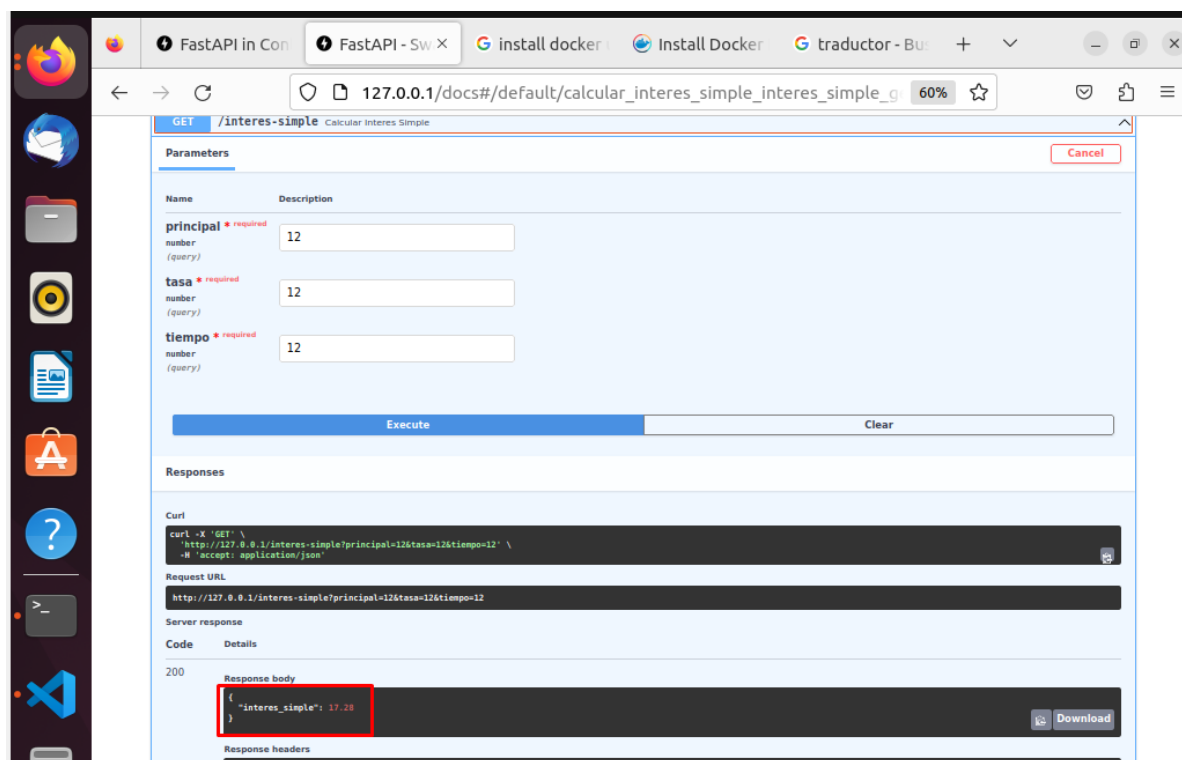
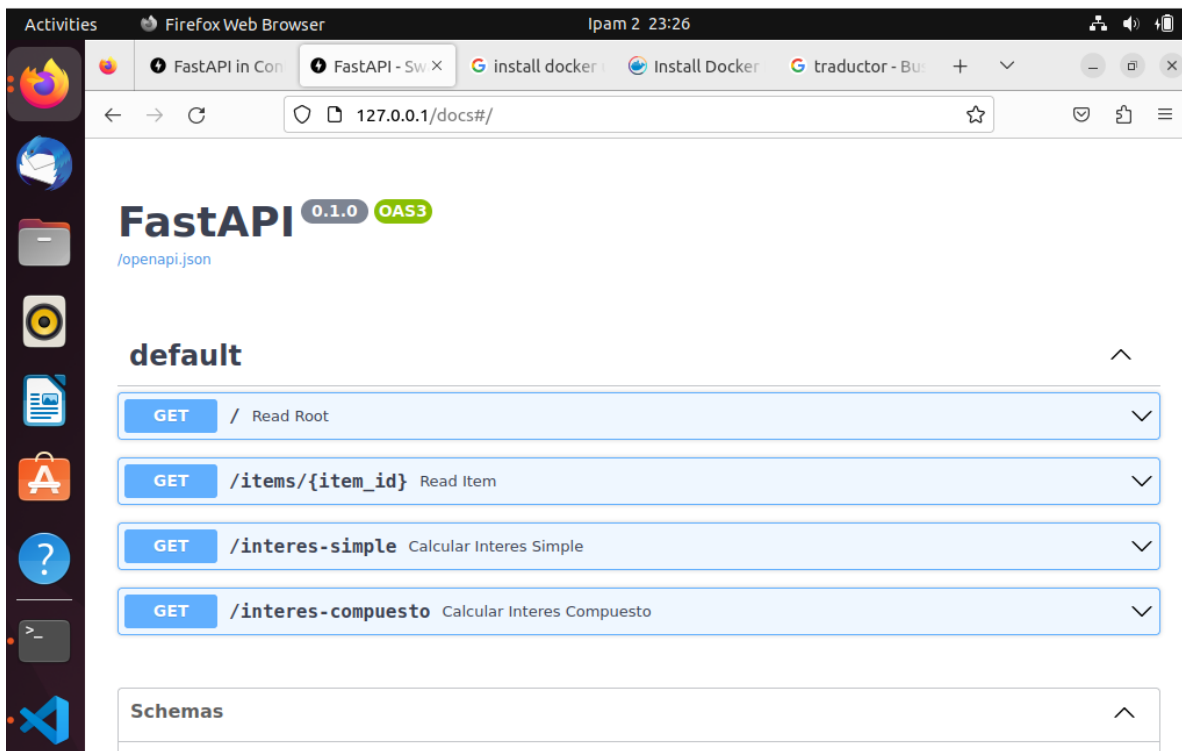
```
Dockerfile > ...
1  #
2  FROM python:3.9
3
4  #
5  WORKDIR /code
6
7  #
8  COPY ./requirements.txt /code/requirements.txt
9
10 #
11 RUN pip install --no-cache-dir --upgrade -r /code/requirements.txt
12
13 #
14 COPY ./app /code/app
15
16 #
17 CMD ["uvicorn", "app.main:app", "--host", "0.0.0.0", "--port", "80"]
18
```



The screenshot shows the Visual Studio Code interface. On the left, the Explorer sidebar displays a project structure with a folder named 'FASTAP...' containing subfolders 'app' and 'requirements.txt'. The 'requirements.txt' file is selected and highlighted. The main editor area shows the content of 'requirements.txt', which lists three dependencies: 'fastapi' (version range 0.68.0 to 0.69.0), 'pydantic' (version range 1.8.0 to 2.0.0), and 'uvicorn' (version range 0.15.0 to 0.16.0). The file is named 'requirements.txt' and is located in the 'app' folder.

```
EXPLORER
FASTAP...
  app
    __init__.py
    main.py
    Dockerfile
    requirements.txt
requirements.txt
1 fastapi>=0.68.0,<0.69.0
2 pydantic>=1.8.0,<2.0.0
3 uvicorn>=0.15.0,<0.16.0
4
```

Resultado



The screenshot shows a web browser window with the address bar displaying `127.0.0.1/docs#/default/calcular_interes_compuesto_interes_com`. The browser has several tabs open, including "FastAPI in Con", "FastAPI - Sw", "install docker", "Install Docker", and "traductor - Bus".

The main content area displays a REST client interface for a FastAPI endpoint. It features a table with columns "Name" and "Description". The table lists three query parameters: `principal`, `tasa`, and `tiempo`, all marked as "required" and "number (query)". Each parameter has an input field with the value "12".

Below the input fields are two buttons: "Execute" (highlighted in blue) and "Clear".

The "Responses" section shows the results of the executed request. It includes a "Curl" section with the command:

```
curl -X 'GET' \
  'http://127.0.0.1/interes-compuesto?principal=12&tasa=12&tiempo=12' \
  -H 'accept: application/json'
```

The "Request URL" section shows the URL: `http://127.0.0.1/interes-compuesto?principal=12&tasa=12&tiempo=12`.

The "Server response" section shows a "200" status code. The "Response body" is displayed as a JSON object:

```
{
  "interes_compuesto": 34.75171191056377
}
```

 The response body is highlighted with a red box. A "Download" button is visible next to the response body.

The "Response headers" section shows the following headers: `content-length: 39`, `content-type: application/json`, `date: Tue, 03 Oct 2023 04:18:24 GMT`, and `server: uvicorn`.