

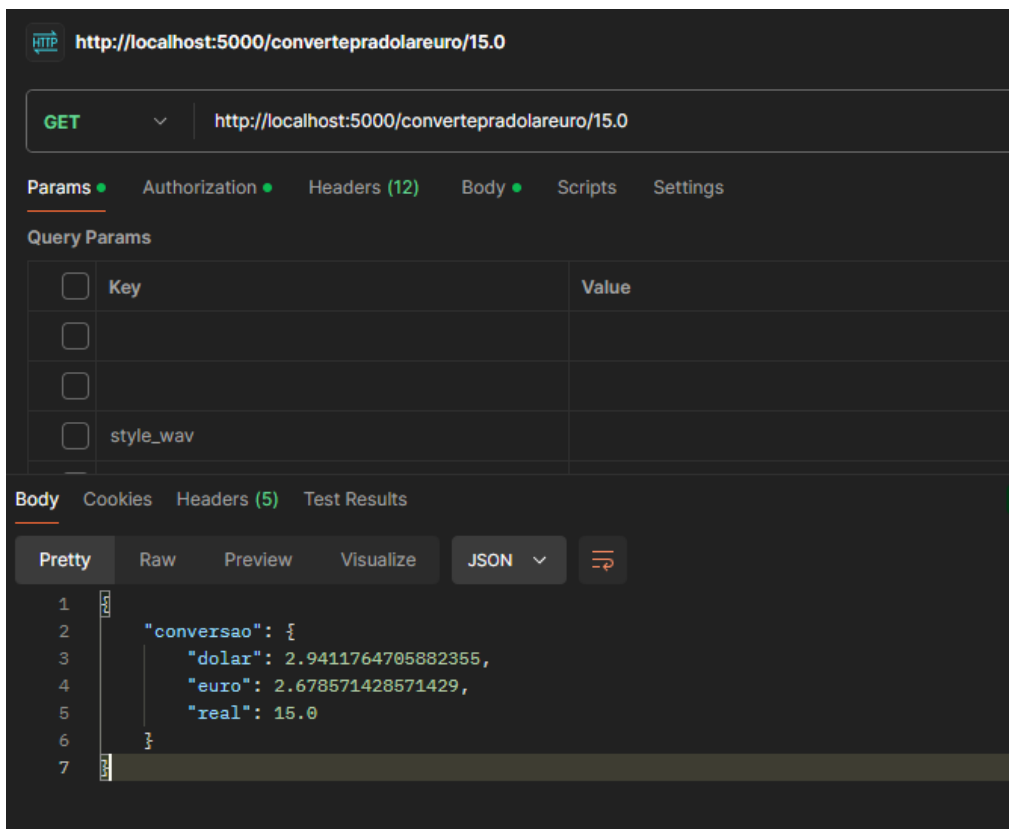
# Computação Distribuída – Atividade Prática

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Link do Github: <https://github.com/ovosimpatico/load-balancer-nginx>

O projeto desenvolvido envolve a criação de uma API para conversão de moeda, transformando valores em Reais para Dólares e Euros, utilizando o framework Flask. Para que a aplicação pudesse ser usada em um ambiente de produção, foi escolhido o *unicorn* como servidor WSGI, que oferece melhor desempenho e suporte a múltiplas conexões simultâneas em comparação ao servidor de desenvolvimento do Flask.



O balanceamento de carga foi implementado com o *Nginx*, que atua tanto como servidor web quanto como balanceador. A configuração utiliza o algoritmo *Round-robin*, responsável por distribuir as requisições de forma igual entre as instâncias da API. Isso garante um uso eficiente dos recursos e melhora a disponibilidade da aplicação.

PROBLEMA	OUTPUT	DEBUG-CONSOLE	TERMINAL	PORTS	COMMENTS
balanceador-Theodoro-10401614	172.21.0.1	-	[03/Oct/2024:00:16:20 +0000]	"GET /convertepradolareuro/15.0 HTTP/1.1"	200 80 -- "PostmanRuntime/7.42.0" --
api1-Theodoro-10401614	172.21.0.4	-	[03/Oct/2024:00:16:20 +0000]	"GET /convertepradolareuro/15.0 HTTP/1.0"	200 80 -- "PostmanRuntime/7.42.0" --
api1-Theodoro-10401614	172.21.0.4	-	[03/Oct/2024:00:16:20 +0000]	"GET /convertepradolareuro/15.0 HTTP/1.0"	200 80 -- "PostmanRuntime/7.42.0" --
balanceador-Theodoro-10401614	172.21.0.1	-	[03/Oct/2024:00:16:20 +0000]	"GET /convertepradolareuro/15.0 HTTP/1.1"	200 80 -- "PostmanRuntime/7.42.0" --
balanceador-Theodoro-10401614	172.21.0.1	-	[03/Oct/2024:00:16:21 +0000]	"GET /convertepradolareuro/15.0 HTTP/1.1"	200 80 -- "PostmanRuntime/7.42.0" --
api1-Theodoro-10401614	172.21.0.4	-	[03/Oct/2024:00:16:21 +0000]	"GET /convertepradolareuro/15.0 HTTP/1.0"	200 80 -- "PostmanRuntime/7.42.0" --
api1-Theodoro-10401614	172.21.0.4	-	[03/Oct/2024:00:16:23 +0000]	"GET /convertepradolareuro/15.0 HTTP/1.0"	200 80 -- "PostmanRuntime/7.42.0" --
balanceador-Theodoro-10401614	172.21.0.1	-	[03/Oct/2024:00:16:23 +0000]	"GET /convertepradolareuro/15.0 HTTP/1.1"	200 80 -- "PostmanRuntime/7.42.0" --
balanceador-Theodoro-10401614	172.21.0.1	-	[03/Oct/2024:00:16:24 +0000]	"GET /convertepradolareuro/15.0 HTTP/1.1"	200 80 -- "PostmanRuntime/7.42.0" --
api1-Theodoro-10401614	172.21.0.4	-	[03/Oct/2024:00:16:24 +0000]	"GET /convertepradolareuro/15.0 HTTP/1.0"	200 80 -- "PostmanRuntime/7.42.0" --
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balanceador-Theodoro-10401614	172.21.0.1	-	[03/Oct/2024:00:16:24 +0000]	"GET /convertepradolareuro/15.0 HTTP/1.1"	200 80 -- "PostmanRuntime/7.42.0" --
api2-Theodoro-10401614	172.21.0.4	-	[03/Oct/2024:00:16:25 +0000]	"GET /convertepradolareuro/15.0 HTTP/1.0"	200 80 -- "PostmanRuntime/7.42.0" --
balanceador-Theodoro-10401614	172.21.0.1	-	[03/Oct/2024:00:16:25 +0000]	"GET /convertepradolareuro/15.0 HTTP/1.1"	200 80 -- "PostmanRuntime/7.42.0" --
api1-Theodoro-10401614	172.21.0.4	-	[03/Oct/2024:00:16:25 +0000]	"GET /convertepradolareuro/15.0 HTTP/1.0"	200 80 -- "PostmanRuntime/7.42.0" --
balanceador-Theodoro-10401614	172.21.0.1	-	[03/Oct/2024:00:16:25 +0000]	"GET /convertepradolareuro/15.0 HTTP/1.1"	200 80 -- "PostmanRuntime/7.42.0" --
balanceador-Theodoro-10401614	172.21.0.1	-	[03/Oct/2024:00:16:25 +0000]	"GET /convertepradolareuro/15.0 HTTP/1.1"	200 80 -- "PostmanRuntime/7.42.0" --
api2-Theodoro-10401614	172.21.0.4	-	[03/Oct/2024:00:16:26 +0000]	"GET /convertepradolareuro/15.0 HTTP/1.0"	200 80 -- "PostmanRuntime/7.42.0" --
balanceador-Theodoro-10401614	172.21.0.1	-	[03/Oct/2024:00:16:26 +0000]	"GET /convertepradolareuro/15.0 HTTP/1.1"	200 80 -- "PostmanRuntime/7.42.0" --
api1-Theodoro-10401614	172.21.0.4	-	[03/Oct/2024:00:16:26 +0000]	"GET /convertepradolareuro/15.0 HTTP/1.0"	200 80 -- "PostmanRuntime/7.42.0" --
balanceador-Theodoro-10401614	172.21.0.1	-	[03/Oct/2024:00:16:26 +0000]	"GET /convertepradolareuro/15.0 HTTP/1.1"	200 80 -- "PostmanRuntime/7.42.0" --
api2-Theodoro-10401614	172.21.0.4	-	[03/Oct/2024:00:16:27 +0000]	"GET /convertepradolareuro/15.0 HTTP/1.0"	200 80 -- "PostmanRuntime/7.42.0" --
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balanceador-Theodoro-10401614	172.21.0.1	-	[03/Oct/2024:00:16:28 +0000]	"GET /convertepradolareuro/15.0 HTTP/1.1"	200 80 -- "PostmanRuntime/7.42.0" --
api2-Theodoro-10401614	172.21.0.4	-	[03/Oct/2024:00:16:28 +0000]	"GET /convertepradolareuro/15.0 HTTP/1.0"	200 80 -- "PostmanRuntime/7.42.0" --
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Para facilitar a execução do sistema, foi utilizado Docker, criando três containers: um para o *Nginx* e dois para a API Flask. O *Docker Compose* foi empregado para orquestrar esses containers, tornando o processo de inicialização mais simples e reproduzível.

A execução do sistema pode ser realizada com o comando: “docker compose up –build”

Este comando irá montar e iniciar os containers, permitindo o teste do balanceamento de carga e da API de conversão.