START2IMPACT

DJANGO & REDIS PROJECT
"ECOHOTEL"

GITHUB REPOSITORY:
https://github.com/diegoddie/ecohotel_djangoproject.git

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Introduction

Business Idea

The goal of this project is to implement a system that tracks the energy produced and consumpted with photovoltaic panels by a hotel and record this data using blockchain technology.

The web application was created using:

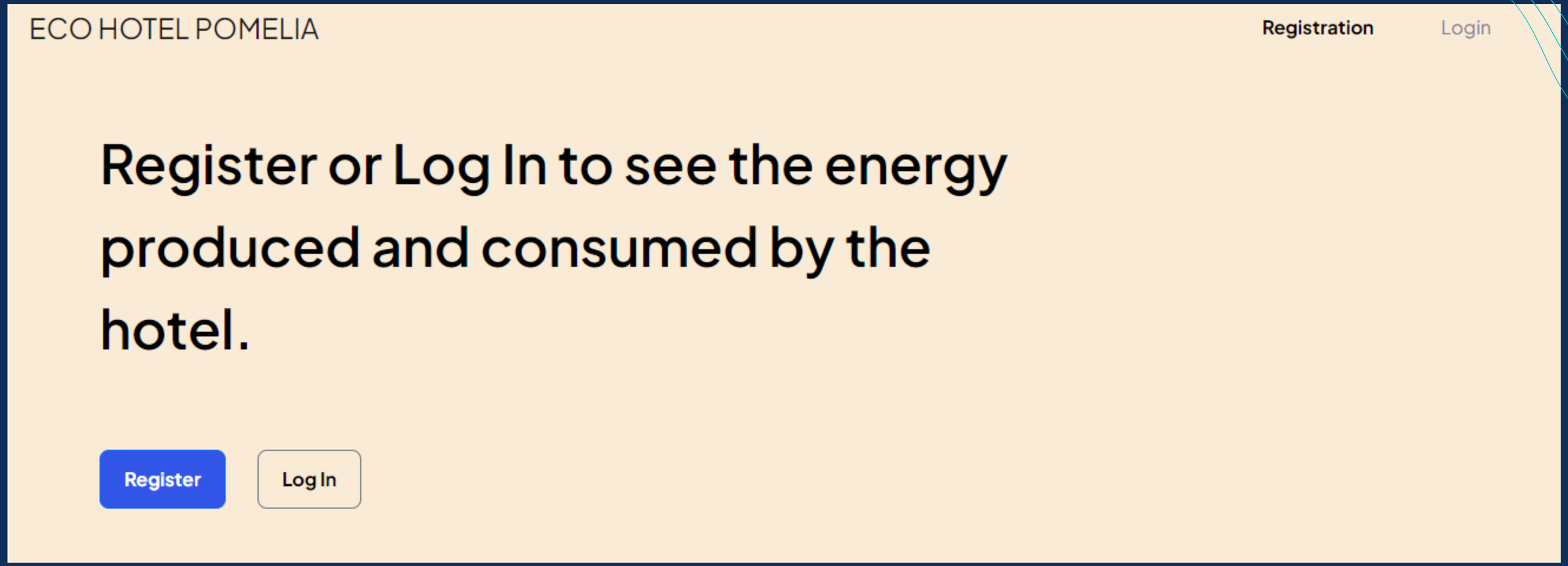
- Django
- Redis
- Goerli (an Ethereum testnet)

Why the blockchain?

The blockchain allows to store information in a completely decentralized and immutable way over time.

Homepage

The application works with a registration system, designed for the hotel staff.
From the homepage the user can choose whether to register or login for users already registered.
It is also possibile to reset the password if the user has forgotten it.



Registration & Login Forms

Register Here

Username*

Required. 150 characters or fewer. Letters, digits and @/./+/-/_ only.

Email*

Password*

- Your password can't be too similar to your other personal information.
- Your password must contain at least 8 characters.
- Your password can't be a commonly used password.
- Your password can't be entirely numeric.

Password confirmation*

Enter the same password as before, for verification.

Create an Account

Log In

Username*

Password*

Log In

Forgotten Your Password?

Energy Produced&Consumed

Once logged in the user can view the data in a tabular form.

ECO HOTEL POMELIA

diego

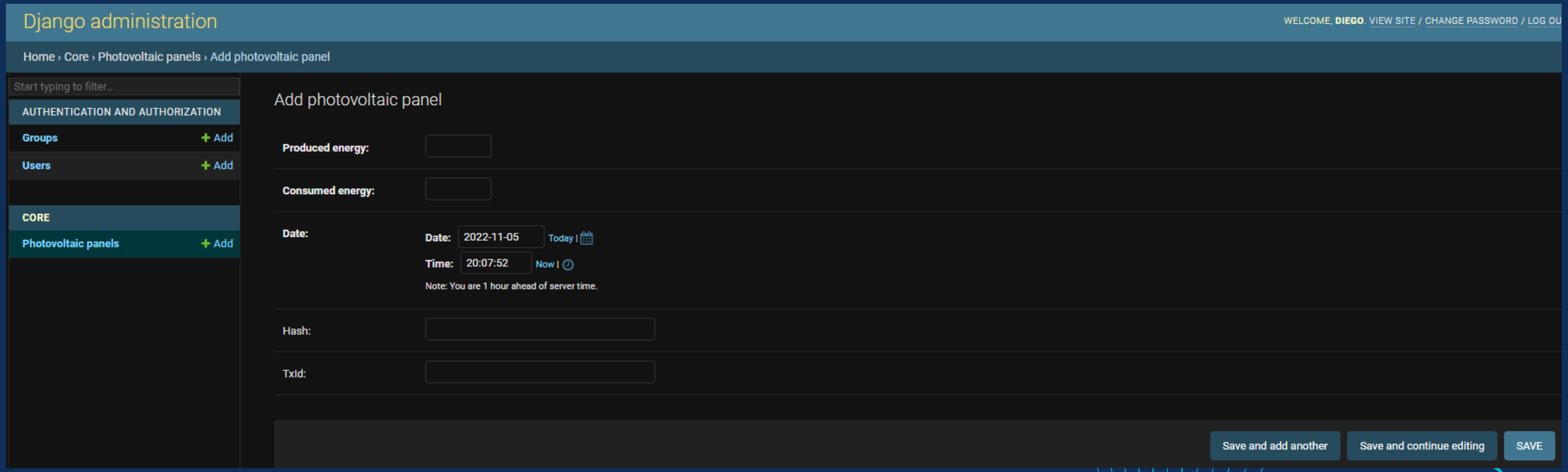
Energy Produced&Consumed per Day

Date	Produced Energy in Watt	Consumed Energy in Watt	TxId
Sat 05 Nov 2022	43	39	0x376b3c7071e86a12ee50419b1d7ae3b5c0054f666ffa823395af78b317c8ab6d
Sun 30 Oct 2022	678	679	0x73db9f78b9ff6b68cd50fabf6922df6ae57cb54d1201982f64a9089634c27c8c
Mon 24 Oct 2022	777	7777	0x30c7840e2ce1c7983a621a2c1f4d95abc1b7421b9a76bbf07752919d1bb57104

But where does this data come from?

Admin Panel

From the admin panel of Django the administrator user can type, for a specific day, the amount of energy produced and consumed.



Hash and TxID will be managed automatically by a function, which we will see in the next slide.

WriteOnChain Function

With the WriteOnChain function a transaction containing previously recorded data on energy consumed and produced will be sent on the Goerli blockchain (an Ethereum testnet).
We'll call this function for the Panel object just created by the admin from the Python shell.

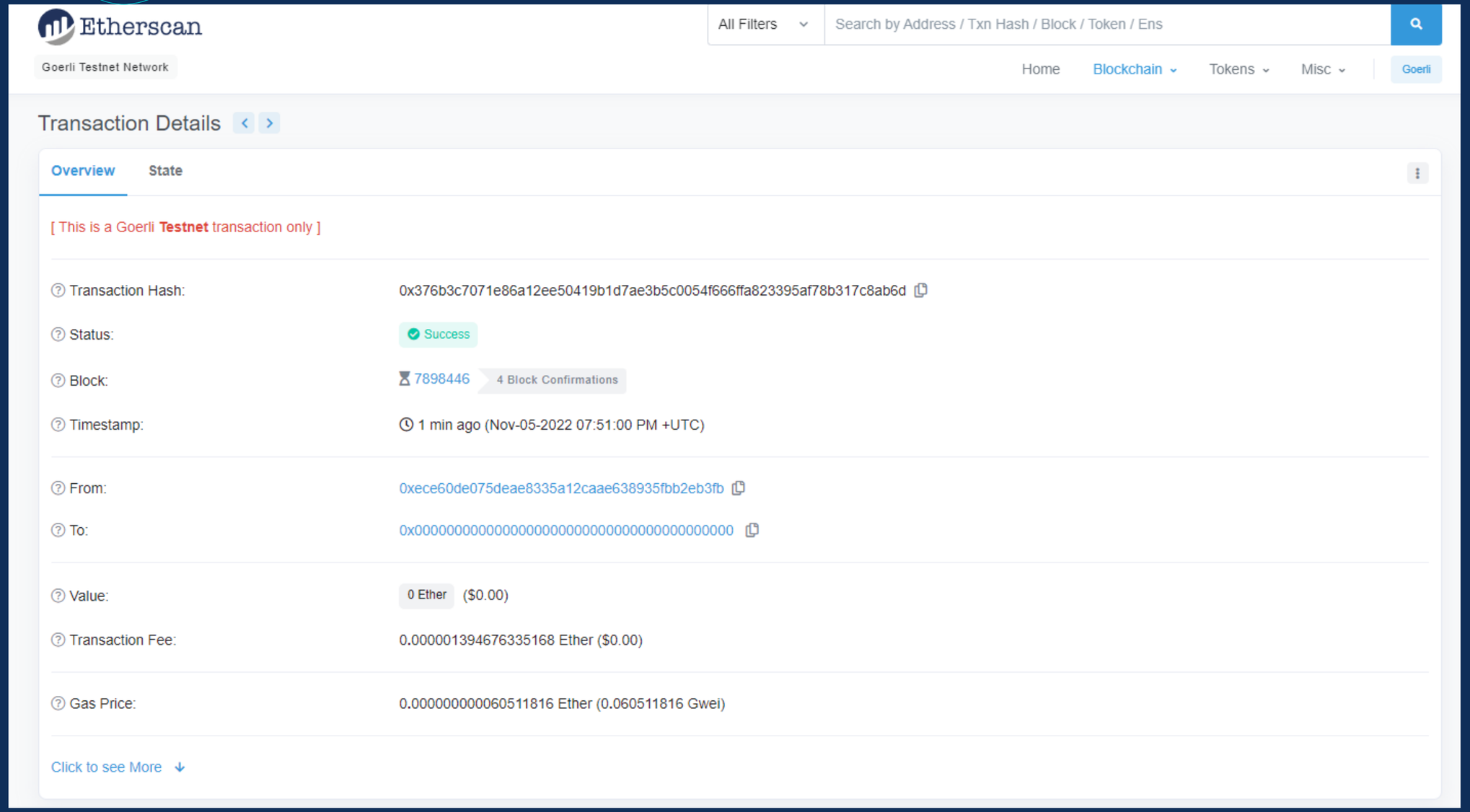
```
In [4]: print(PhotovoltaicPanel.objects.all())
<QuerySet [<PhotovoltaicPanel: 2022-10-24>, <PhotovoltaicPanel: 2022-10-30>, <PhotovoltaicPanel: 2022-11-05>]>

In [5]: panel3=PhotovoltaicPanel.objects.filter()[2]

In [6]: panel3.writeOnChain()
1
```

But why does the WriteOnChain function return 1?

When the user sends an on-chain transaction, he will not be notified if the transaction fails.
Through the **waitForTransactionReceipt** function made available by the Web3 library the user can check the status of the transaction just sent, this will return 1 when it was successful or 0 when it failed.

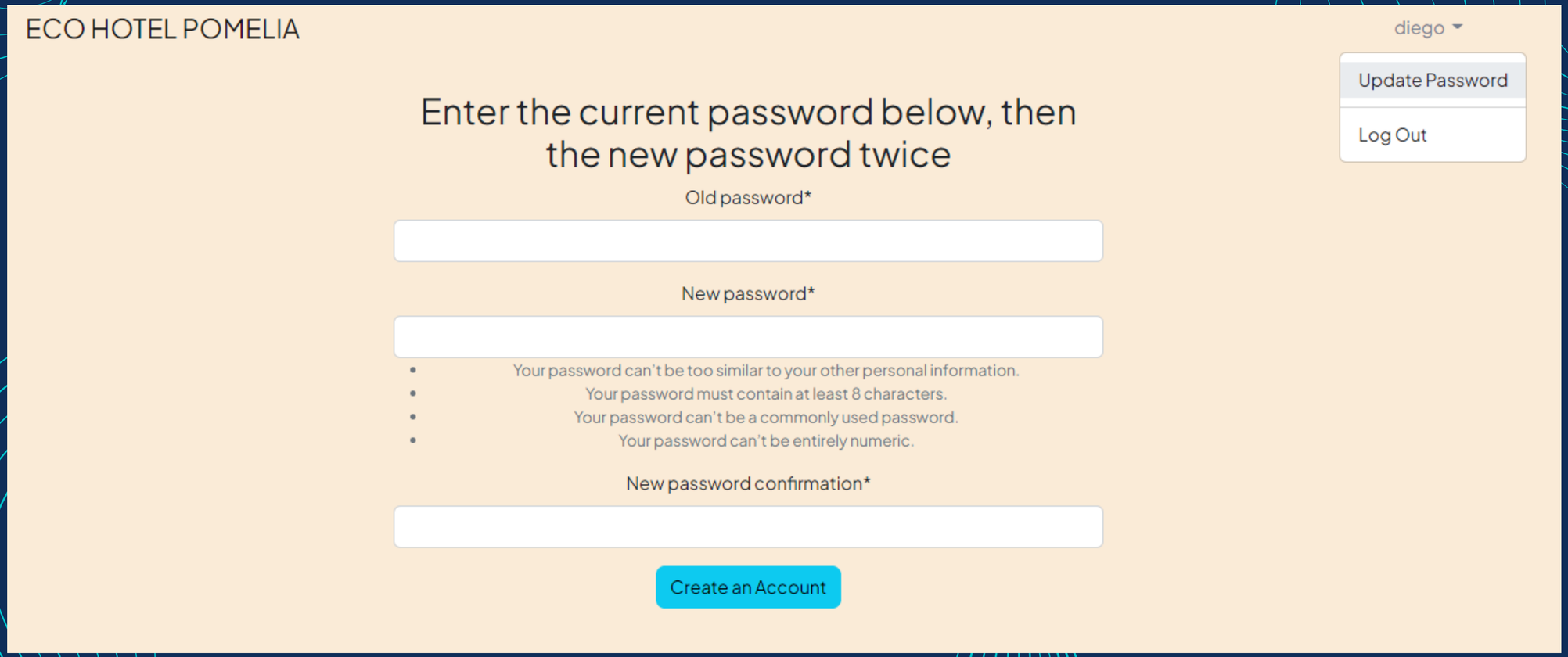
Chain Explorer

By copying the txID inside a Chain Explorer the user can check details about the transaction.



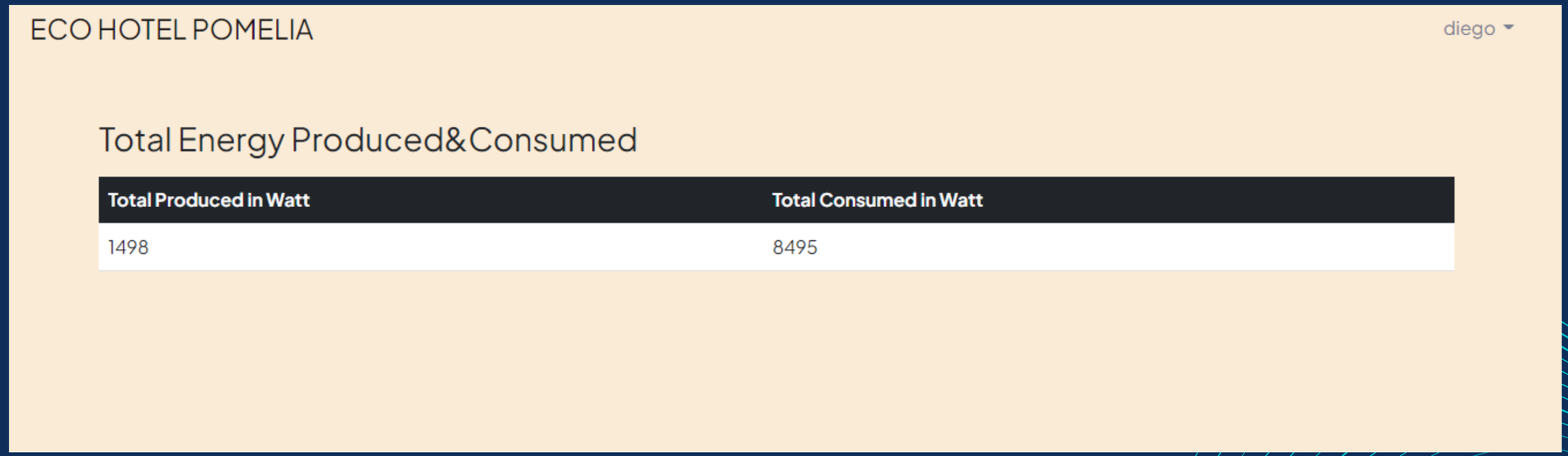
Other Features

- Password Update



- # Show Totals

By adding */totals* to the URL staff users will be able to see the total of energy produced and consumed in Watts.



- # IP-Checker

A logging system to store the last IP that had access to the platform for a certain administrator user, and it shows a warning message when this is different from the previous one.
Redis, a NoSQL database, was used for this feature.

```
System check identified no issues (0 silenced).
November 05, 2022 - 22:45:54
Django version 4.0.5, using settings 'ecohotel.settings'
Starting development server at http://127.0.0.1:8000/
Quit the server with CTRL-BREAK.
[05/Nov/2022 22:45:59] "GET / HTTP/1.1" 200 4766
[05/Nov/2022 22:46:09] "GET /accounts/logout/ HTTP/1.1" 200 2376
[05/Nov/2022 22:46:10] "GET /accounts/login/ HTTP/1.1" 200 3458
is_ip_different: False
current: 127.0.0.1, last: 127.0.0.1
[05/Nov/2022 22:46:16] "POST /accounts/login/ HTTP/1.1" 302 0
[05/Nov/2022 22:46:16] "GET / HTTP/1.1" 200 4766
```

Thanks for your attention!

Contacts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