Academic Data Extraction FROM Gradus

Project done by:

Jumaniyazov Suleyman - [EG6X6K]
Dijanira Muachifi - [U2FELP]
Bermejo Magarín Alberto - [H64GOG]

Project Description

This project **automates** the **collection** and **analysis** of article data from the Gradus website. It utilizes web scraping, PDF processing, and data organization to extract relevant information and consolidate it into a **structured Excel file**.

Required data

Year

Publication year of the article.

Volume

Volume number of the publication.

Number

Issue number within the volume.

File name

PDF file name of the article.

First page

Starting page number of the article.

Last page

Ending page number of the article.

Authors

Names of the article's authors.

Original title

Article's title in the original language.

Title in English

Translated title of the article.

Section code

Article's section classification (e.g., ART).

Abstract original

Abstract in the original language.

Abstract english

Abstract translated into English.

Email address

Corresponding author's email address.

MTA REPO URL

Article's link on the MTA Repository.

DOI

Digital Object Identifier for the article (from 2020).

MTMT

Link to the article in MTMT database.

Objectives

Data Collection

Scrape and download PDF files of articles available on the Gradus website

Information Extraction

Process the PDFs to extract the aforementioned data points

Result Storage

Export the data into an organized Excel file for easy access and analysis

Libraries

We have been working with Python 3.x, and we used the following libraries:

Os	For file management on the operating system.
Requests	To make HTTP requests and download files.
BeautifulSoup	For web scraping and HTML element extraction.
PyPDF2	To read and extract text from PDF files.
Pandas	For organizing and managing tabular data.
Openpyxl	To create and manipulate Excel spreadsheets.
Re	For pattern matching using regular expressions.

Code Architecture

01

Constants

Base URL of the Gradus site to access the 2020 articles.

02

process_pdf(pdf_url)

This function downloads a PDF file, processes its content, and returns the extracted text and the first and last page numbers of the article.

03

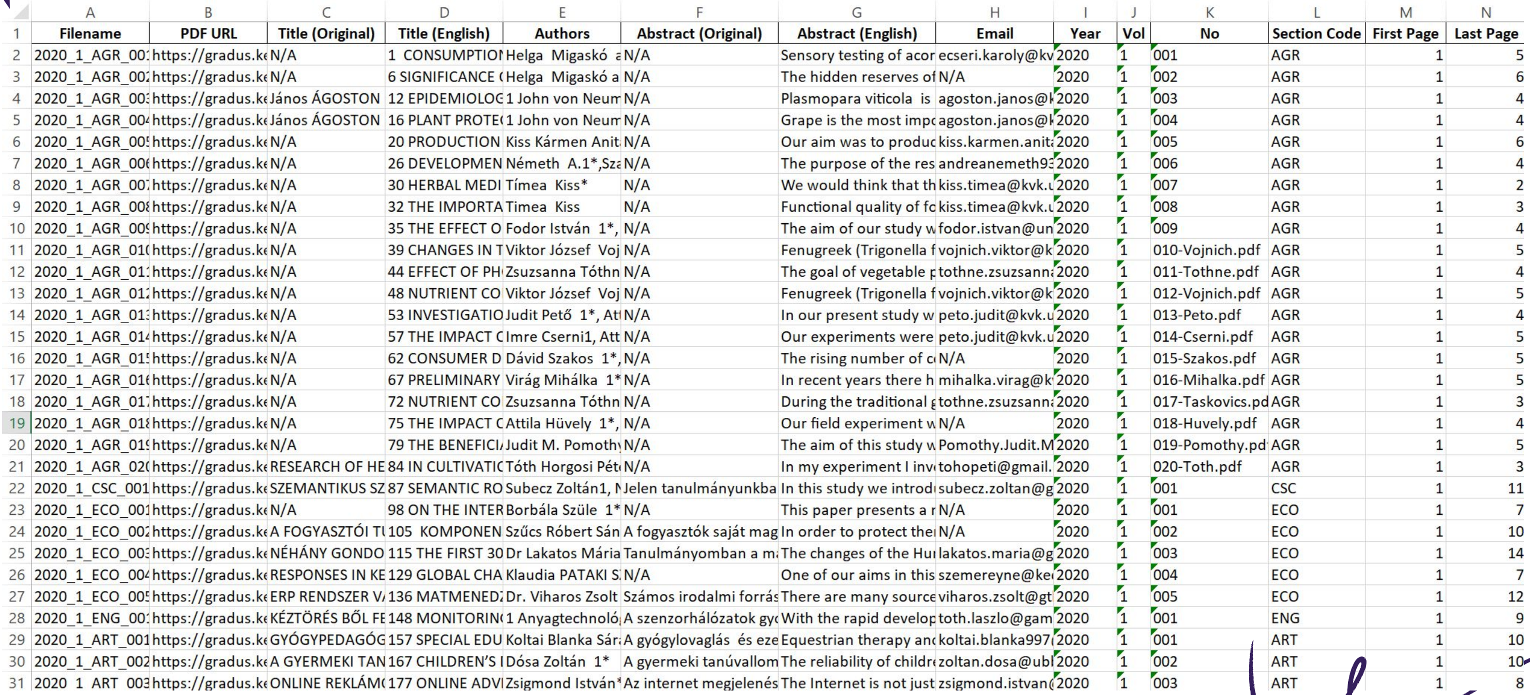
scrape_gradus()

Scrapes Gradus for PDFs, extracts article details (titles, abstracts, authors, emails), and organizes them into dictionaries.

04

main()

Coordinates the program, collects data with scrape_gradus(), converts it to a DataFrame, and saves it as gradus_articles.xlsx.



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CONCLUSION

This project demonstrates the power of automation in handling and processing large amounts of academic data from online sources. By leveraging Python libraries like BeautifulSoup and PyPDF2, we were able to efficiently extract, process, and organize article metadata and content. The final product, an Excel file, provides a structured and user-friendly format for analyzing the gathered information. This project serves as a foundation for further improvements and expansions, showcasing the potential for future applications in academic research and data management.

Contributions

Member	Task	Observations
Jumaniyazov Suleyman	Implementation of the process_pdf function	Focused on extracting simple metadata from PDFs
Muachifi Dijanira	Development of the scrape_gradus function	Web scraping and HTML data collection
Bermejo Magarín Alberto	Creation of Excel export and testing	Final data organization

Thanks for your attention!

Do you have any questions?