

User Requirements Document (URD)

Project Name: Online Learning Data Analysis

1. Introduction

Overview:

This project analyzes global online learning trends from 2004 to 2021, focusing on data from Spain, France, and India. Using Python and the pandas library, the project examines the rise and fall of online learning engagement, identifying key trends, highest and lowest engagement years, and offering insights into how global events (e.g., the COVID-19 pandemic) influenced online education.

Purpose:

To understand online learning behavior, support policy decisions, and inform strategies for improving digital education.

2. Objectives

- Clean and preprocess the dataset for analysis.
- Identify trends in online learning engagement.
- Highlight peak and low engagement years for Spain, France, and India.
- Create interactive visualizations to communicate insights.

3. Scope

- Analyze online learning data for Spain, France, and India.
- Cover engagement trends from 2004–2021.
- Deliverables:
 - Processed dataset.
 - Insights on engagement trends.
 - Interactive visualizations.

4. Requirements

- **Data Preprocessing:**
 - Clean data by handling null values and duplicates.
 - Extract Year from Month column.

- **Analysis:**
 - Summarize yearly engagement for each country.
 - Identify peak and low years for Spain, France, and India.
- **Visualization:**
 - Create an interactive line chart using Plotly.
 - Ensure clear differentiation for each country.

5. Tools

- **Programming:** Python
- **Libraries:** pandas, Plotly
- **Dataset:** Online learning engagement data (2004–2021).

6. Constraints

- Limited to Spain, France, and India.
- Analysis spans 2004–2021 only.