# sba21725 - MSc in Data Analytics

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Github Repo: <https://github.com/sba21725/MSC_DA_CA1>

# Abstract

# Introduction

Machine Learning in Tourism (Egger, 2022). Data Analytics in Industry 4.0 (Duan, 2021).

Related Concepts

Current Interdisciplinary Research between Data Analytics and Industry 4.0 (lit rev)

# Research Method

This research aim at solving the following problems:

1. Support the author learning process. The timeframe given to the project is strictly defined and limited.
2. Identify the problem. A mathematics scientist engaged in a piece of research can attach his problem straight away because a scientific framework already exists. In other words the problem is well defined (Popper, 2005).
3. Apply tools and techniques from statistics, machine learning, data preparation and visualization, and programming.
4. Project Report.

The research design, or research template by consequences of the intertwined subjects is to be an ensamble of Describe, Explain, Correlate, and Predict (Walliman, 2021).

Interdisciplinary approach in Data Analytics aiming at discovering patterns in data and making predictions. A Human Computer cognitive learning process will be employed. {four way of thinking book}

## Research approach

1. Business Goal (Research Questions)
2. Data Sources

Data are collected from cso web site using REST API.

Difficulties related to data analytics reasoning. The aim of the author is conveying the findings related to the Tourism in Ireland and the learning approaches employed. In order to create this document you need the master the following skills:

1. Data Visualization
2. Data Manipulation

## Programming approach

The programming approch is iterative delivered by Jupyter Notes and the present report.

A Function Programming Paradign will be preferred to pipeline, manipulate, and transform datasets.

A class hence OOP will be used to create a class for a pipeline

# Tourism in Ireland

Tourism is bla bla bla.

# Results

## Overseas Trips to Ireland by Non-Residents in 2009

Expenditure from turism coming from, see tab. 1: Overseas Trips to Ireland by Non-Residents in 2009.

Table 1 – Overseas Trips to Ireland by Non-Residents in 2009

|  |  |
| --- | --- |
| **Area of Residence** | **Number** |
| Germany | 812,000 |
| France | 577,000 |
| Italy | 392,000 |
| United States and Canada | 2,412,000 |
| Great Britain (includes England, Scotland, Wales) | 3,788,000 |
| Australia and New Zealand | 225,000 |
| Other Europe (14) | 2,129,000 |
| Other countries (18) | 473,000 |

From this statistic, Area of Residence Expenditure Overseas Trips to Ireland

A graph with different colored bars

Description automatically generated

## Correlation between Number of Trips and Average Number of Nights

A graph showing different colored dots

Description automatically generated

Data Sources

In order to carry on the research the following institution will be browsed.

<https://ec.europa.eu/eurostat>

<https://www.cso.ie>

## Tourism Balance between Travel to and from Ireland

The balance is positive for Ireland

# Discussion

# Conclusion e Future Research Direction

Unsupervised machine learning, Artificial Neural Networks, and Deep Learning over more sofisticated visualization skills and statistical techniques. By skill is meant the ability to quickly program a visualization function in a Jupyter Note.

# Bibliography

Duan, L. a. D. X. L., 2021. Data analytics in industry 4.0: A survey. *Information Systems Frontiers,* pp. 1-17.

Egger, R., 2022. Machine Learning in Tourism: A Brief Overview: Generation of Knowledge from Experience. *Applied data science in tourism: Interdisciplinary approaches, methodologies, and applications,* pp. 85-107.

Popper, K., 2005. *The Logic of Scientific Discovery.* New York: Routledge.

Walliman, N., 2021. *Research methods: The basics.* London: Routledge.

# Annex