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**National College of Ireland**

**Project Submission Sheet**

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| --- | --- | --- | --- |
| **Student Name:** | Ashutosh Alone, Sahil Mulani | | |
| **Student ID:** | 22228381, 22234144 | | |
| **Programme** | MSC Data Analytics | **Year:** | 2023-24 |
| **Module:** | Business intelligence and Business architecture | | |
| **Lecturer:** | Professor Vikas Sahni | | |
| **Submission Due Date:** | 06/12/2023 | | |
| **Project Title:** | Business Analytics for iClothing.ie.ie | | |
| **Word Count:** | 2110 | | |

I hereby certify that the information contained in this (my submission) is information pertaining to research I conducted for this project. All information other than my own contribution will be fully referenced and listed in the relevant bibliography section at the rear of the project.

ALL internet material must be referenced in the references section. Students are encouraged to use the Harvard Referencing Standard supplied by the Library. To use other author's written or electronic work is illegal (plagiarism) and may result in disciplinary action. Students may be required to undergo a viva (oral examination) if there is suspicion about the validity of their submitted work.

|  |  |
| --- | --- |
| **Signature:** | Ashutosh Alone, Sahil Mulani |
| **Date:** | 05/12/2023 |

**PLEASE READ THE FOLLOWING INSTRUCTIONS:**

1. Please attach a completed copy of this sheet to each project (including multiple copies).

2. Projects should be submitted to your Programme Coordinator.

3. **You must ensure that you retain a HARD COPY of ALL projects**, both for your own reference and in case a project is lost or mislaid. It is not sufficient to keep a copy on computer. Please do not bind projects or place in covers unless specifically requested.

4. You must ensure that all projects are submitted to your Programme Coordinator on or before the required submission date. **Late submissions will incur penalties.**

5. All projects must be submitted and passed in order to successfully complete the year. **Any project/assignment not submitted will be marked as a fail.**

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| **Office Use Only** | |
| Signature: |  |
| Date: |  |
| Penalty Applied (if applicable): |  |

AI Acknowledgement Supplement

# Business Intelligence and Business analytics

# Business Analytics for iClothing.ie

|  |  |  |
| --- | --- | --- |
| **YourName/Student Number** | **Course** | **Date** |
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This section is a supplement to the main assignment, to be used if AI was used in any capacity in the creation of your assignment; if you have queries about how to do this, please contact your lecturer. For an example of how to fill these sections out, please click [here](https://libguides.ncirl.ie/useofaiinteachingandlearning/studentguide).

# AI Acknowledgment

This section acknowledges the AI tools that were utilized in the process of completing this assignment.

|  |  |  |
| --- | --- | --- |
| **Tool Name** | **Brief Description** | **Link to tool** |
| **NA** |  |  |

# Description of AI Usage

This section provides a more detailed description of how the AI tools were used in the assignment. It includes information about the prompts given to the AI tool, the responses received, and how these responses were utilized or modified in the assignment. **One table should be used for each tool used**.

|  |
| --- |
| **[Insert Tool Name]** |
| **NA** |

# Evidence of AI Usage

This section includes evidence of significant prompts and responses used or generated through the AI tool. It should provide a clear understanding of the extent to which the AI tool was used in the assignment. Evidence may be attached via screenshots or text.

# Additional Evidence:

[Place evidence here]

Business Analytics for iClothing.ie

*Abstract*—iClothing.ie, a forward-thinking clothing brand, is gearing up to capitalize on Ireland's changing fashion landscape in the wake of legislative shifts and post-Covid consumer trends. With an emphasis on leveraging Power BI, the brand aims to integrate data-driven insights seamlessly into its operations, enhancing the overall customer experience. Positioned to navigate upcoming regulations effectively, iClothing.ie is strategically positioning itself to become a leader in the Irish fashion market, blending technological efficiency with a customer-centric ethos to achieve its growth goals for 2022.

Keywords— MySQL, Power BI, Dashboard, iClothing.ie

# I. Introduction

This project scope includes a comprehensive Data Analysis and Visualization tailored for iClothing.ie in the dynamic Irish fashion market. It aims to seamlessly integrate advanced analytics, with a central focus on Power BI, to provide actionable insights into market trends, customer behaviors, and operational efficiencies. The project emphasizes technological innovation, regulatory compliance, and a customer-centric approach to position iClothing.ie as a pioneer at the intersection of fashion and data-driven insights. The ensuing report will detail the methodologies and strategies employed, outlining a roadmap for iClothing.ie's future growth and agility.

# II. Background INFORMATION & MARKET PLACE

iClothing.ie, established in 2011 by Abbas bari, is a leading Irish e-commerce platform specializing in fashion and lifestyle products. Today, iClothing.ie is a popular destination for a wide range of apparel, footwear, accessories, and beauty products, offering a diverse selection of national and international brands. With a user-friendly interface and innovative features like virtual try-on technologies, iClothing.ie has played a significant role in shaping Ireland’s digital fashion landscape, catering to the preferences of a vast and diverse customer base.

## **A. Marketplace Overview for** iClothing**.ie:**

iClothing.ie operates in the retail industry, participating in both physical and e-commerce retail. The project will analyze data from both online and offline sales channels to provide a comprehensive assessment of iClothing.ie’s performance.

## **B. Fashion Industry Landscape:**

The Fashion industry, encompassing segments like apparel and e-commerce, is dynamic and highly competitive. It plays a crucial role in the global economy by catering to diverse consumer needs.

## **C. iClothing.ie's Position:**

Established as an online retail platform, iClothing.ie focuses on providing a wide range of clothing options. It operates exclusively online, emphasizing convenience for customers seeking trendy apparel.

## **D. Competitive Environment:**

iClothing.ie faces competition from various online fashion retailers. Success in this space is influenced by factors such as product variety, pricing strategies, and efficient supply chain management.

## **E. E-commerce and Strategy:**

Being an online retailer, iClothing.ie inherently follows an e-commerce strategy. The emphasis is on providing a seamless online shopping experience, including features like easy navigation and secure payment options.

## **F.** **Supply Chain Management and Sustainability:**

Efficient supply chain management is crucial for iClothing.ie's success. Streamlining logistics and exploring sustainable sourcing practices align with industry trends.

# III. Scope of process

## The Project Scope includes implementation of a end-to-end Business Intelligence (BI) Solution. The Business Intelligence solution seeks to offer in-depth understanding of product effectiveness, customer inclinations, and buying behaviors. It will identify bottlenecks or areas for improvement in logistics, order processing, and other operations

# IV. Project Approach

The scope of processes involves structuring your entire strategy plan based on the Balanced Scorecard approach. The Balanced Scorecard is a strategic management framework that offers a holistic and well-rounded assessment of an organization's performance. The framework is structured around ​four key perspectives:​ ​financial, customer, internal processes, and learning and growth​, providing a well-rounded approach to strategic management and decision-making..

## **A. Financial Perspective :**

### Implementing a Business Intelligence (BI) dashboard at iClothing.ie can enhance decision-making, streamline operations, and focus strategies. By leveraging data-driven intelligence, iClothing.ie can improve financial performance through increased sales, optimized costs, and enhanced customer satisfaction and loyalty.

## **B.. Customer Perspective :**

Implementing Business Intelligence (BI) dashboard for iClothing.ie from the customer perspective can lead to improved service, personalized interactions, effective communication, customer retention, efficient order management, and continuous feedback for enhancement, ultimately contributing to a positive and satisfying shopping experience for iClothing.ie 's customers.

## **C.. Internal Process Perspective :**

#### Implementing Business Intelligence (BI) dashboard for iClothing.ie from an Internal Processes perspective can enhance efficiency in order processing, inventory management, customer service, marketing, communication, and overall.

## **D.. Learning and Growth Perspective:**

Business Intelligence (BI) dashboard implementation involves training employees to effectively use the system to manage customer relationships. This training contributes to the learning aspect, enhancing employees' skills and knowledge in customer engagement and service.

# V. Project Tools and applications review:

When choosing tools and applications for the project, we considered multiple parameters for comparison.

|  |  |  |
| --- | --- | --- |
| **Feature** | **Power BI** | **Tableau** |
| User Interface | Intuitive, user-friendly, Microsoft-style | Visually appealing, interactive |
| Integration | Seamless with Microsoft products | Integrates well with various platforms |
| Cost | Often more cost-effective, bundled options | Tends to be pricier, additional costs |
| Data Connectivity | Wide range of native connectors | Extensive connectivity options |

*Table 1: Power BI Vs Tableau*

# VI. Project Implementation Tools and Applications Selected:

* ***Power BI****:* Power BI is a versatile and user-friendly business analytics tool that integrates seamlessly with the Microsoft ecosystem, making it a popular choice for organizations looking to derive insights from their data efficiently. Power BI offers a user-friendly platform with strong capabilities, enabling smooth data visualization to convert intricate datasets into clear and persuasive visuals, promoting improved comprehension and decision-making.
* ***MYSQL****:* MySQL ​is a open-source relational database management system and is​ ​known​ for its strong performance, scalability, and stability, making it a popular choice for businesses of varying sizes in need of dependable data storage solutions.

# Business Intellgince Architecture

The data that is being used is stored in multiple spreadsheets. Data from multiple sources will ​be extracted, transformed, and loaded into​ a centralized MySQL Database. This cleaned and transformed data will then be utilized to create dashboards in Power BI, establishing a central repository for the data.

A diagram of a database

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*Figure 1: BI Architecture*

# System Design

In the context of iClothing.ie 's dynamic e-commerce platform, the database design seeks to capture and arrange various data sets including customer profiles, product inventories, sales transactions, and operational metrics. Identifying key entities along with their characteristics and interconnections is crucial for establishing a robust and expandable data framework.

## **A. Data Capture Points** :

* **Sales and Revenue Data:**Capturing sales transactions and revenue figures to analyze product performance, identify best-selling items, and track overall financial health.
* **Customer Interaction Data***:* Gathering data on customer interactions, including website visits, clicks, and preferences, to understand user behavior and tailor marketing strategies.
* **Inventory Management Data:** Tracking inventory levels, stock movements, and product availability to optimize supply chain operations and prevent stockouts or overstock situations.
* **Website Analytics:** Monitoring website analytics such as page views, bounce rates, and conversion rates to assess the effectiveness of the online platform and identify areas for improvement.

## **B. Analytical Requirements**:

* **Sales Analysis**: Analyze sales data to identify top-performing products, assess revenue trends, and understand the impact of promotions on sales.
* **Customer Segmentation**: Segment customers based on demographics, purchase behavior, and preferences to tailor marketing strategies and improve customer engagement.
* **Supply Chain Optimization**: Utilize data on logistics and inventory to optimize supply chain processes, reduce costs, and improve overall supply chain efficiency.
* **Inventory Optimization**: Utilize inventory data for demand forecasting, optimizing stock levels, and minimizing excess inventory or stockouts.

## **C. Entity-Relationship (E-R) Diagram** :

​The Entity-Relationship Diagram​ provides a fundamental blueprint for planning and structuring iClothing.ie 's extensive range of Business Intelligence and Business Analytics systems. This graphical depiction captures the connections among different entities in the data ecosystem, offering a transparent outline for information integration and circulation.

A screenshot of a computer

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*Figure 2: Entity-Relationship Diagram*

## **D. Database Overview:**

* **Customers:** The Customer table stores information about every customer that has made a purchase through the iClothing.ie website. The Customer information includes Customer Name, Country, and City of Resident.
* **Products:** The Product table store information associated with all the products available on the website for sale. The Product table includes columns: Product Name, type of Product and its category, Brand Name, Size of Product, Color and Rating.
* **Sales:** The Sales Table store information about each sale made through the website. The Sales table contains columns from all the other tables which are essential for making a sales transaction.
* **Calendar:** The Calendar table store information about all the attributed associated with the date and further.

## **E. Data Dictionary** :

A data dictionary is a centralized file that holds comprehensive details about the data components within a database. This includes names, types, lengths, descriptions, restrictions, connections, and guidelines for usage of each component.

*Calendar Table:*

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Data Type** | **Nullable** | **Primary Key** |
| Date | date | Y | N |
| Date\_Key | int | Y | N |
| Day | text | Y | N |
| Month | text | Y | N |
| Month\_Num | int | Y | N |
| Year | int | Y | N |

*Product Table:*

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Data Type** | **Nullable** | **Primary Key** |
| Brand Name | text | Y | N |
| Category | text | Y | N |
| Color | text | Y | N |
| Product ID | text | N | Y |
| Product Name | text | Y | N |
| Ratings | int | Y | N |
| Size | int | Y | N |
| Sub-Category | text | Y | N |

*Customer Table:*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Column** |  | **Data Type** | **Nullable** | **Primary Key** |
| Customer ID |  | int | N | Y |
| Customer Name |  | text | Y | N |
| Segment |  | text | Y | N |
| Country |  | text | Y | N |
| City |  | text | Y | N |
| Postal Code |  | int | Y | N |

##### *Sales Table:*

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Data Type** | **Nullable** | **Primary Key** |
| Customer ID | int | N | Y |
| Date | date | Y | N |
| Date\_key | int | Y | N |
| Discount | int | N | N |
| Order ID | int | N | Y |
| Product ID | int | N | Y |
| Profit | int | Y | N |
| Quantity | int | Y | N |
| Revenue | int | Y | N |
| Shipping Mode | text | Y | N |
| Shipping Time | int | Y | N |

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