ASSIGNMENT 1 FRONT SHEET

Qualification	**BTEC Level 5 HND Diploma in Computing**		
Unit number and title	Unit 14: Business Intelligence		
Submission date		**Date Received 1st submission**	
Re-submission Date		**Date Received 2nd submission**	
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Student declaration I certify that the assignment submission is entirely my own work and I fully understand the consequences of plagiarism. I understand that making a false declaration is a form of malpractice.			
		Student's signature	

Grading grid

P1	P2	M1	M2	D1	D2

☼ Summative Feedback:	☼ Resubmission Feedback:	
Grade:	**Assessor Signature:**	**Date:**
IV Signature:		

UNIVERSITY of GREENWICH
Alliance with FPT Education

BTEC

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I. INTRODUCTION

EduPro stands as an innovative initiative spearheaded by the collaborative efforts of the esteemed SeventEdu Company. This groundbreaking project delves deep into the intricate tapestry of global education, meticulously gathering, analyzing, and synthesizing data from diverse educational landscapes across the world. Through an exhaustive process, EduPro compiles a comprehensive repository of educational statistics and trends, providing an all-encompassing panorama of the state of education on a global scale.

The meticulous curation of data within EduPro isn't merely a collection of numbers and figures; it represents a transformative journey towards understanding the dynamic nuances of educational systems worldwide. By visualizing this meticulously analyzed data, EduPro empowers a multitude of stakeholders, including astute researchers, impassioned educators, and visionary policymakers. These stakeholders glean invaluable insights, enabling them to make informed decisions that drive substantial changes in education.

SeventEdu Company, as the driving force behind EduPro, stands as a beacon of expertise in the realm of global education. With headquarters strategically positioned across multiple locations, they meticulously gather and encapsulate crucial metrics ranging from out-of-school rates and enrollment statistics to literacy levels and educational proficiency indicators across various tiers of education.

The dataset curated by SeventEdu emerges as an invaluable treasure trove of knowledge, offering a wealth of information to researchers, teachers, and policymakers. This robust repository serves as a guiding light, facilitating the evaluation, enhancement, and transformation of global education systems. Its far-reaching implications extend beyond mere statistical analysis; it fosters a paradigm shift towards holistic improvements in educational frameworks, ensuring a brighter future for learners worldwide.

II. DATASET

Countries	Latitude	Longitude	OOSR_Pre	OOSR_Pre	OOSR_Prir	OOSR_Prir	OOSR_Lov	OOSR_Lov	OOSR_Up	OOSR_Up	Completio	Completio	Completio	Completio	Completio	Completio	Grade_2_3	Grade_2_3	Primary_E	Primary_E	Lower_Sec	Lower_Sec
Afghanista	33.93911	67.70995	0	0	0	0	0	0	44	69	67	40	49	26	32	14	22	25	13	11	0	0
Albania	41.15333	20.16833	4	2	6	3	6	1	21	15	94	96	98	97	76	80	0	0	0	0	48	58
Algeria	28.03389	1.659626	0	0	0	0	0	0	0	0	93	93	49	65	22	37	0	0	0	0	21	19
Andorra	42.50629	1.521801	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Angola	11.20269	17.87389	31	39	0	0	0	0	0	0	63	57	42	32	24	15	0	0	0	0	0	0
Anguilla	18.22055	63.06862	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Antigua an	17.06082	61.79643	14	4	4	1	1	2	14	12	0	0	0	0	0	0	0	0	0	0	0	0
Argentina	38.4161	63.61667	2	2	0	0	0	0	15	7	91	94	70	79	46	53	76	71	46	56	48	31
Armenia	40.0691	45.03819	52	50	9	9	11	9	16	4	99	99	95	99	69	79	0	0	0	55	0	50
Australia	25.2744	133.7751	13	14	0	0	2	3	10	6	0	0	0	0	0	0	94	70	0	64	80	78
Austria	47.51623	14.55007	0	0	0	0	1	0	10	9	0	0	0	0	0	0	0	0	98	0	76	79
Azerbaijan	40.14311	47.57693	32	19	10	7	0	0	0	0	0	0	0	0	0	0	0	0	81	0	0	0
The Bahan	25.03428	77.39628	0	0	0	0	23	21	29	24	0	0	0	0	0	0	0	0	0	0	0	0
Bahrain	26.0667	50.5577	31	28	2	3	7	0	18	6	0	0	0	0	0	0	69	40	0	0	0	39
Bangladesl	23.68499	90.35633	0	0	0	0	0	0	41	36	76	89	59	71	32	27	47	34	44	32	54	57
Barbados	13.19389	59.5432	6	10	1	2	7	3	7	3	99	99	98	98	91	97	0	0	0	0	0	0
Belarus	53.70981	27.95339	0	4	1	2	1	1	6	4	100	100	100	100	91	94	0	0	0	0	77	71
Belgium	50.50389	4.469936	3	2	1	0	1	1	1	2	0	0	0	0	0	0	0	0	0	0	79	80
Belize	17.18988	88.49765	18	16	1	1	9	11	38	35	95	96	55	66	48	51	0	0	0	0	0	0
Benin	9.30769	2.315834	15	16	3	10	27	43	46	66	51	44	25	13	12	5	9	34	23	11	0	0
Bhutan	27.51416	90.4336	58	59	5	2	18	6	33	22	67	71	41	38	25	18	0	0	0	0	56	0
Bolivia	16.29015	63.58865	9	8	5	5	13	14	22	22	0	0	0	0	0	0	0	0	0	0	0	0
Bosnia and	43.91589	17.67908	72	73	0	0	0	0	22	19	99	100	97	97	92	92	0	0	0	0	46	42
Botswana	22.32847	24.68487	79	78	12	10	0	0	0	0	95	98	92	92	55	66	0	0	0	16	0	0
Brazil	14.235	51.92528	0	1	1	1	2	3	16	14	95	97	81	89	65	75	80	71	53	52	50	32
British Virg	18.4207	64.63997	9	2	4	3	8	7	24	16	0	0	0	0	0	0	0	0	0	0	0	0

Figure 1 Dataset

https://www.kaggle.com/datasets/nelgiriyewithana/world-educational-data/data

This carefully assembled collection of data presents a comprehensive outlook on worldwide education, offering deep understandings into the ever-evolving educational scenarios across various nations and regions. Covering a wide array of educational facets, it includes vital measurements like rates of students out of school, completion rates, proficiency levels, literacy statistics, birth rates, and enrollment figures for primary and tertiary education. This invaluable dataset serves as a rich resource for insightful researchers, committed educators, and progressive policymakers, empowering them to initiate a transformative process in evaluating, improving, and restructuring global education systems.

III. BUSINESS PROCESS & SUPPORTING PROCESS (P1)

1. Business Intelligence: Introduce

7 steps of business process

- Define your goals.
- Plan and map your process.
- Set actions and assign stakeholders.
- Test the process.
- Implement the process.
- Monitor the results.
- Repeat.

Figure 2 7 steps of Business Analytics

Business Process & Management:

A business process is a collection of related, structured activities or tasks performed by people, equipment, or a combination of both, to achieve a specific organizational goal. These activities are typically organized in a specific sequence and involve various roles and resources.

Business Process Outsourcing (BPO)

Business process outsourcing (BPO) is the practice of contracting a third-party vendor to handle specific business processes or operations on behalf of the organization. This allows organizations to focus on their core competencies and achieve greater efficiency and cost savings.

2. Business Intelligence: Benefits

Business intelligence (BI) empowers organizations with real-time insights and data-driven decision-making, leading to improved efficiency, profitability, and customer satisfaction. BI helps identify trends, automate tasks, personalize customer experiences, and optimize operations, ultimately driving competitive advantage and organizational success.

3. Business process of EduPro:

Project Identification and Needs Assessment:

- Analyze existing data on education indicators to help identify areas with the greatest need for intervention.
- Interactive dashboards and visualizations can communicate complex data insights to stakeholders in a clear and actionable way.

Collect data:

- Collecting data for analysis is an important step. Data sources spreading online will be a challenge for the project in synthesizing, collecting clean and valuable data sources.

Analyze and compile data:

- Selected data will be analyzed based on many aspects, helping to find deep causes in the field of education through visual analysis results.

Proposed Solutions:

- Data-driven insights can guide the acquisition of resources that are most relevant to the local context and student needs.

Curriculum Development and Resource Acquisition:

- Analyze data about students' demographics, learning styles, and previous educational experiences to inform the development of adaptive and personalized instructional materials.

Teacher Training and Professional Development:

- May analyze data on teacher performance and training effectiveness to identify areas for improvement.
- Personalized training recommendations can be provided to individual teachers based on their strengths and weaknesses.

Student Recruitment and Enrollment:

- Analyze data on student demographics, enrollment trends, and dropout rates to identify potential barriers to access.
- Data can be used to monitor enrollment progress and identify areas for improvement in the recruitment process.

Program Implementation and Monitoring:

- Be able to anticipate potential problems and proactively address them before they become serious problems.
- Data-driven feedback can be provided to instructors to help them improve their teaching methods and personalize learning for each student.

Partnerships and Collaboration:

- Data sharing and collaboration among different stakeholders involved in world education initiatives.
- Data-driven insights can be used to identify common challenges and opportunities for collaboration.

Sustainability and Long-Term Impact:

- Anticipate future challenges and develop contingency plans to ensure program continuity.
- Data-driven insights can be used to advocate for policy changes and ensure long-term funding for world education initiatives.

Evaluation and Reporting:

- Create comprehensive reports and dashboards to track program progress, measure impact, and identify areas for improvement.
- Data-driven reports can be used to communicate results to stakeholders and demonstrate the value of world education initiatives.
- Identify best practices and lessons learned that can be shared with other organizations and inform future initiatives.

Additional Considerations:

- Data quality
- Data privacy and security
- User training and support
- Accessibility

4. Supporting Process:

Definition:

These are the processes that are not directly related to the delivery of the service or product to the customer. But they help the business create an environment where the primary processes can work better. That is where the name “supporting process” comes from. These are the processes under the accounting department, human resource management department, and any other department that supports the main functions of the business (Cetin, 2010).

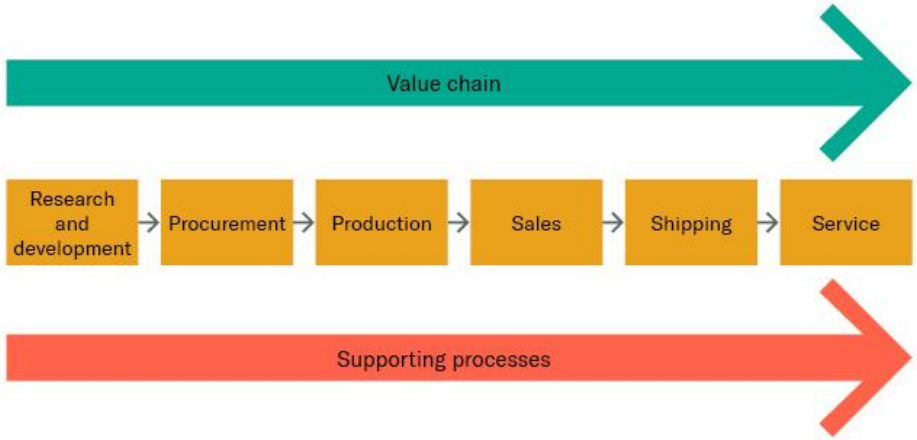

Figure 3 Supporting Process

Areas understood as support processes might be:

- IT - maintaining systems and software (to support for example manufacturing or control),
- Human resources - for example recruiting employees,
- Facilities - for example all building which company rents or owns,
- Accounting - keeping books and paying taxes,
- Customer - answering to customer requests (for example after the purchase),
- Services - daily operations (often there is service desk created, covers incident, problem or change management)

IV. TOOLS FOR BI (P2)

1. Python

Figure 4 Python

Python in Power BI combines both the benefits of Python and Power BI, therefor easily perform EDA and create presentations with Power BI's interactive dashboard. You also have the flexibility to write Python code for the console.

2. Microsoft Power BI

Figure 5 MS Power BI

Microsoft Power BI is a web-based business analytics tool that specializes in data visualization. It helps users detect patterns in real-time and includes new connections that enhance ad performance. With web-based capabilities, Power BI is accessible from any location. Users can also integrate apps and create real-time dashboards and reports.

3. Tableau

Figure 6 Tableau

Tableau is a Business Intelligence application that specializes in data discovery and visualization. The program allows you to easily analyze, visualize, and share data without IT intervention. Tableau works with a variety of data sources, including Microsoft Excel, Oracle, MS SQL, Google Analytics, and SalesForce. Users will have access to a well-designed and easy-to-use dashboard. Tableau also offers a variety of standalone solutions, including Tableau Desktop (for everyone) and Tableau Server (analytics for organizations), both of which can operate locally, as well as Tableau Online and many other solutions.

4. Oracle

Figure 7 Oracle

Oracle BI is a technology and business intelligence application suite for enterprises. This technology provides customers with nearly all business intelligence features, including dashboards, proactive intelligence, custom reporting, and more. Oracle is also suitable for businesses that need to analyze large amounts of data (from both Oracle and non-Oracle data sources) because it is an extremely resilient solution. Data warehouse, versioning, self-service portal, and alerts/notifications are other important aspects.

5. Comparison Tableau and Power BI

	Power BI	Tableau
Usability	Single and familiar user interface makes it easy to get started	Does not require specialized knowledge but not as user-friendly as BI
Best for	Analyzing personalized data – but can convert data from multiple sources with optional software add-on	Built to represent larger datasets from multiple sources
Data handling	Power BI pro is limited to 1GB per dataset and 10GB per user. With Power BI Premium this increases to 10GB per dataset and 100TB per User	Limited to 100GB capacity for workbooks and extract
Data sources	Can access multitude of databases and cloud services including SQL, SAP, HANA and Oracle	Can access a huge number of servers and data sources

Features	Power BI is an effective data visualization tool that is constantly evolving	Tableau is feature-rich and highly customizable – though more complex than Power BI
Deployment Options	Delivered as a cloud service – particular ideal for smaller organizations	Can be delivered as a cloud service, on – premise, or via a third-party cloud provider
Cost	Easy to get started with low cost per – user pricing	Higher cost – balanced by richer features and data handling capabilities

V. LEVELS OF MANAGEMENT DECISION MAKING

For making exceptional decisions, it is necessary for a manager to have sound judgment and to be objective. Management planning depends greatly on effective decision making by managers. It is important to grasp both the types of decisions and the specific circumstances in which these decisions are made (Ezenwa, 2022).

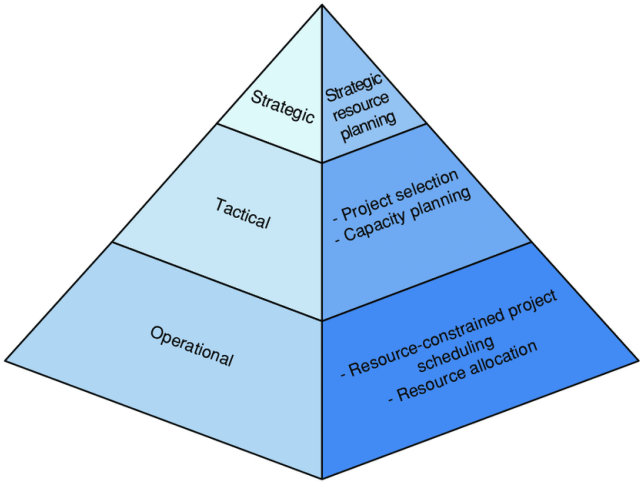

Figure 8 Levels of management decision making

In an organization, there are three levels of decision making. Although managers at all levels can make decisions, the top management makes the most critical decisions. It is very important to obtain feedback from other managers during decision-making.

- Strategic Decisions: These decisions shape an organization's overarching strategies and objectives. Typically made by top-level management.
- Tactical Decisions: Tactical choices revolve around the methods employed to attain organizational goals. Mainly handled by middle and front-line managers.
- Operational Decisions: Addressing ways to deliver value to customers, operational decisions are primarily managed by middle and front-line managers.

1. Strategic Decision

Definition:

Strategic management is the highest level. It aims to define the direction of the company and the strategies to be implemented to achieve the objectives set (Ntara, 2023).

The responsibilities and objectives of strategic management include:

- Determining the vision and goals.
- Developing a strategy to achieve these goals.
- The allocation of resources.
- Market and competition analysis.
- Assessing business performance and identifying opportunities for improvement
- Strategic decision making
- Strategic management focuses on a long-term vision and performance.

Example:

Developing a new product or service: Identifying customer needs, analyzing competitor offerings, and forecasting market demand to determine the best product or service to develop.

2. Tactical Decision

Definition:

Tactical management is the intermediate level and implements the strategies set by strategic and operational management. It involves the coordination of operational activities to achieve the company's short-term goals (Lan, 2022).

Responsibilities and objectives of tactical management include:

- Resource planning and allocation.
- Supervision and coordination of day-to-day activities.
- Communication of instructions and objectives to the teams
- Assessing operational performance and identifying opportunities for improvement

Example:

Developing product pricing strategies: Analyzing customer price sensitivity, competitor pricing, and production costs to determine the optimal price point.

3. Optional Decision

Definition:

Operational management consists of implementing the strategies defined by strategic management. The tasks to be accomplished are prioritized and distributed (Barry, 2014).

The objectives of operational management include:

- Increased productivity and profitability
- Reduction of costs and production times
- Optimization of the use of human, financial and material resources
- Meeting the needs and expectations of employees

- Anticipation and management of potential risks

Example:

Scheduling production runs: Optimizing production schedules based on order backlog, available capacity, and material lead times.

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