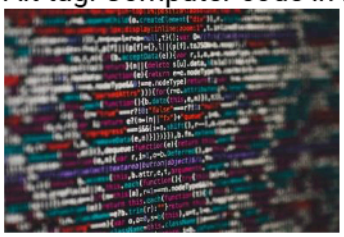
AIA 6550 Module 1 Storyboard

AIA 6550 MODULE 1 BLUEPRINT INFORMATION (NOT FOR ARTICULATE) (This box is for internal usage at NXU and the info doesn't go into the LMS or Articulate Rise.)	
Title	Module 1 – Big Data Analytics Revolution
Course Competency	(EL.DS.1) Identify big data analytics revolution trends.
Module Outcomes	**LO1**. Describe the impact and capabilities of machine learning and artificial intelligence in business. **LO2**. Identify the presence of big data analytics across several industries. **LO3**. Explain how to group unstructured data.
Burning Glass Skills	• Machine Learning • Trend analysis • Strategy • Artificial intelligence

LANDING PAGE	
BLOCK: Text	
Title	Module 1 – Big Data Analytics Revolution
Image	Alt tag: Computer code in multiple colors. 
Description	The focus of this module is to acquire an advanced understanding of what Machine Learning is and how it is applied in support of Advanced Analytics. Machine Learning provides systems the ability to automatically learn and improve from experience without being explicitly programmed. Machine Learning focuses on the development of computer programs that can access data and apply what was learned from that data.

Page 1: Introduction	
BLOCK: Text	
Content	Welcome to Module 1, Big Data Analytics Revolution. Machine Learning is the application of using algorithms for analyzing and interpreting data as well as content; therefore, learning from that data to make determinations and/or predictions. It is important to note that Machine Learning is a subset of Artificial Intelligence (AI), which is a subset of Data Science and Data Science is of Computer Science and Computer Engineering. Machine Learning provides the capability of an application and/or machine to conduct human-like critical thinking and reasoning to make decisions as well as increase its knowledge learned from that data and the logic of the algorithms applied to that data. This is made possible through the deployment of Artificial Neural Networks (ANNs) which are computing systems that mimic the neurons of the human intellect and provide an artificial level of human consciousness through the application of Deep Learning Algorithms. Based on this understanding of Machine Learning, the discipline of Advanced Analytics is the autonomous examination of data and/or content. This examination is accomplished through advanced analytical techniques for which Machine Learning and Deep Learning Algorithms are critical to achieving that examination. In support of these algorithms there are additional techniques and methods for data/content mining, pattern matching, analysis, forecasting, visualization, semantic analysis, sentiment analysis, network and cluster analysis, multivariate statistics, and complex event processing. Consider the following guiding question for this module and review the introduction.
BLOCK: Text, Statement	
Statement	Why is it necessary to know big data analytics revolution trends?
BLOCK: Multimedia, Audio Embed	
Content to record for an audio file	SME will write a 200-300-word module introduction. This script is outsourced to voice talent to create audio files that we include with the course. This is written from the frame of reference as if you were the professor talking one-on-one to a learner.
	It is very important and critical that we understand what is meant by Big Data Analytics and how it is being applied across many different industries and government sectors. Big Data Analytics refers to the capabilities of Artificial Intelligence (AI) relative to Machine Learning Algorithms and the software technologies that support them. Big Data Analytics is divided into three key subcategories which are Prescriptive Analytics, Predictive Analytics, and Descriptive Analytics. It is also important to understand that Big Data Analytics

	refers to the Information Technology (IT) Infrastructures, for example, the Engineered System Platforms and supporting cloud-based technologies. The revolutionary trends of where Big Data Analytics making a huge contribution is in the area of eCommerce relative to Business to Consumer (B2C) applications that provide further insights into consumer-based spending based on types of consumer segmentation, construct forecasts based on predictions of where to position their products and/or services as well as competitive pricing structures to specific consumer segments. Big Data Analytics is having a huge impact on Medical and Pharmaceutical Research, for example, finding a vaccine for COVID-19 and expediting the Food and Drug Administration's (FDA) needed trials as well as Adaptive Diagnostics and Prognostics. Also, Big Data Analytics are having huge impacts on the way the United States Military engage adversaries and, in many consumer-based manufacturing organizations for manufacturing process monitoring and control as well as maintenance and service logistics.
BLOCK: Text, Paragraph with Heading	
Heading	About the Assignments
Content	In this module, you will have one graded assignment. • Machine Learning Algorithms & AANs Strategy In addition to this assignment, you will have many resources and practice opportunities. While these practice opportunities are not graded, we suggest that you use them to help reinforce the module information and to help you prepare for your graded assignments. The work you do in this module will help you build toward this important course competency: • Identify big data analytics revolution trends. You will achieve this competency by building essential skills. Continue to learn how your assignment will prepare you for success in this course.
BLOCK: Divider, Continue (Do not have to complete previous block to continue)	
BLOCK: Interactive, Media **(use skills map template)**	
Content	• **Machine Learning Algorithms & AANs Strategy** ○ **Skills**: Machine Learning, Trend Analysis, Strategy, Artificial Intelligence

	○ **Course Competency**: Identify big data analytics revolution trends.
BLOCK, Text with header	
Heading	What's Next?
Content	Now that you have a sense of what you're going to accomplish by the end of Module 1, and how it connects to the bigger picture of your skill-building and course success, let's get started with the first topic in this module.

Page 2: Big Data: Real-Time and Strategic Optimization	
BLOCK: Text with numbered list	
Content	The impact that Big Data Analytics is having in terms of real-time and strategic optimization can be seen in the advances in smart sensors which have created a unique opportunity to monitor and coordinate the performance of physical engineering systems with broader enterprise operations. Four examples of these are: 1. Manufacturing operations 2. Service logistics 3. Maintenance management 4. After-sales services This transformation demands methodologies and solutions capable of analyzing and modeling in-situ multi-stream sensor signals. These signals support and facilitate optimal decision-making strategies as well as combined with state-of-the-art real-time optimization techniques for real-time decision-making that can be computed in fast-changing business environments. These advances unlock significant cost-savings for business.
BLOCK: Text with heading and numbered list	
Heading	Big Data Analytics
Content	For businesses to achieve these cost-saving advances, predictive analytical technologies had to be deployed for synthesizing and extracting information from multi-stream sensor signals. The information was used to predict the future performance of complex engineering systems. The secondary area addressed was the development of real-time enhanced optimization models. These models computed optimal decisions by leveraging the information embedded in the data. Likewise, we saw an impact from the development of modern methodologies for efficient updating when information changes along with automated model calibrations. These automated models

	use techniques from machine learning, information theory, and statistics. The effects of applying Big Data Analytics and supporting infrastructure appear in these domains: 1. Adaptive Diagnostics and Prognostics 2. Predictive Analytics 3. Big Data Manufacturing Process Monitoring and Control 4. Maintenance and Service Logistics The impact of Big Data Analytics in terms of real-time and strategic optimization can be seen in the advances in our biomedical sciences. These advances are through the application of Machine Learning and the application of Robotic Process Automation pseudo-like APIs for integration across various types of data. This data can be clinical, pathological, pharmaceutical, research, deoxyribonucleic (DNA) molecular cell structures, and the use of Cognitive Agents.
BLOCK: Text with sub heading and numbered list	
Subheading	**Cognitive Agents**
Content	Cognitive agents use the Belief-Desire-Intention (BDI) based architecture, which is based on human-like critical thinking and human reasoning abilities. Artificial Neural Networks (ANNs) assist with this human-like critical thinking and human reasoning abilities. Cognitive Agents are normally static agents that require complex Machine Learning and Deep Learning Algorithms to perform complex computations supported by the following: 1. Autonomous databases 2. Autonomous data warehouses 3. Content management systems 4. Complex and clustered computational clusters
BLOCK: Subheading with text with numbered list	
Subheading	**Biomedical Research**
Content	Clinical and medical researchers are studying the complex nature of healthcare data in terms of both characteristics of the data itself and the taxonomy of analytics that can be meaningfully performed on them with the aid of Big Data Analytics. The focus of their research is in three distinct areas of biomedical research: 1. Image Processing 2. Signal Processing 3. Genomics

	These areas of biomedical research lend themselves to utilizing the concepts of Big Data Analytics relative to Machine Learning and the capabilities of Artificial Intelligence technologies. Select the following to learn more.
BLOCK: Interactive, Accordion	
Accordion 1	**Image Processing** Medical images are an important source of data frequently used for diagnosis, therapy assessment, and planning such as imaging (MRI), and molecular imaging. There are massive amounts of image data ranging from several to many terabytes. This data requires large storage capacities to be available as well as the Information Technology Infrastructure needed relative to Engineered Systems for processing this data. These systems and storage must be high-velocity throughput, redundancy, and availability extensible and scalable.
Accordion 2	**Signal Processing** This secondary aspect of Big Data Analytics must be present to support the Machine Learning Algorithms developed if any decision assisting automation were to be performed using the data. Also, if other sources of data acquired for each patient are also utilized during the diagnoses, prognosis, and treatment processes, then the problem of providing cohesive storage and developing efficient methods capable of encapsulating the broad range of data becomes a challenge. This is the same is true for Signal Processing where situational context awareness is embedded in the development of continuous monitoring and predictive systems for analytical analysis.
Accordion 3	**Genomics** In terms of Genomics, Big Data Analytics applications and Information Technology Infrastructure is critical considering the large amounts of data and the implication of developing actionable recommendations based on the use of Machine Learning Algorithms, Cognitive Agents, and Artificial Neural Networks (ANNs).
BLOCK: Text	
Content	In other areas of real-time strategic optimization of Big Data Analytics in the area of clinical care and medicine, in general, can be found the areas of providing patients with Artificial Intelligent Medical Experts who can personalize, advise, manage and support patient care by answering questions, expediting immediate care, and the need for medications. This is similar to Artificial Intelligent Financial Advisors in Investment Banking through the use of Cognitive Agents supported by Intelligent SMART Workflow working with Chatbots.

	There are so many industries and cases where Big Data Analytics has changed the way we conduct business regardless of industry type. Select the following to learn about two more examples.
BLOCK: Interactive, Accordion	
Accordion Tab 1	**Example 1** **Telehealth.** The use of this Big Data Analytics in Clinical Care and Medicine has enhanced and entrenched Telehealth as a viable extension of Healthcare Teams as witnessed today with the spread of COVID-19 globally. We have seen the rise of Telehealth in response to in-person restrictions surrounding COVID-19.
Accordion Tab 2	**Example 2** **Academic Chatbots.** The same is also true in academia where we are having Artificial Intelligent Subject Matter Mentors at the collegiate level teach online courses supported by assistant chatbots that are mentoring students on assignments and projects. This has begun to revolutionize traditional academia and their mindsets of traditional methods of teaching and parting knowledge and continue with making huge impacts on secondary education as well as elementary education.
BLOCK: Text	
Content	The impact of Big Data Analytics real-time and strategic optimization can be categorized as a success for an organization if it is architected and deployed as Machine Learning Algorithms and the software technologies that support them and the Information Technology (IT) Infrastructures. An example is Engineered System Platforms and supporting cloud-based technologies. The following video, How Humans and AI can work together to create better business, discusses the "Human plus AI" approach to business. Business technologist Sylvain Duranton shares the specific formula companies can adopt to employ AI and humans cohesively. As you consider the video content, what are your answers to the following questions? • What could your current place of employment do to adopt AI? • What can you do to advocate to effectively advocate for AI implementation?
BLOCK: Video Embed	
Video	<iframe width="560" height="315" src="https://www.youtube.com/embed/2KMk1lJGPlk"

	frameborder="0" allow="accelerometer; autoplay; encrypted-media; gyroscope; picture-in-picture" allowfullscreen></iframe>
BLOCK: Text	
Content	The following LinkedIn Learning video, Big Data, offers a brief explanation of the fundamental differences between data science and big data. As you consider the video content, what are your answers to the following questions? • What are the defenses between data science and big data? • How does your current place of employment use both data science and big data? If they do not use either, how could they implement it? Now let us take your learning one step further. Complete the multiple-choice items that are connected to the LinkedIn learning video you just finished. These items are not graded, but they are a great way to check your understanding so far.
BLOCK: Text	
Content	The following article, How to Leverage Big Data and Machine Learning for Business Insights, further explains how businesses use machine learning to gain insight into its' marketing, cybersecurity, and operations sectors. As you consider the article's content and the videos within the article, what are your answers to the following questions? • Do you feel that recommendation engines are beneficial to you as a consumer in your day-to-day life? • Through what form of media do you most frequently experience ad-fraud?
BLOCK: Text **Heading: Stop and Think**	
Heading	Stop and Think
Content	Let us take a moment to think about big data, machine learning, and their application to a specific business discipline, Supply Chain Management. • How can Machine Learning Algorithms can be applied in helping with meeting Customer Forecasted Demands? • What considerations would you have to incorporate into your business strategy?
BLOCK: Text with Heading	
Heading	**Additional Resources**

Content	The following resources address concepts such as block-structured optimization of big data and parallelization. You are encouraged to examine these optional readings to gain a technical understanding of optimization with Big data through two different methods. • Parallel coordinate descent methods for big data optimization • A Unified Algorithmic Framework for Block-Structured Optimization Involving Big Data
BLOCK: Text, Paragraph with Heading	
Heading	What's Next?
Content	Based on the knowledge gained relative to the capabilities of Machine Learning, as supported by many examples for real-time optimizations of multivariate sets of data/content across an organization's value-chain of business functions; we will now explore the capabilities of Machine Learning for using these optimized sets for predictive analysis based on forecasting probabilities and inferring probable outcomes. In this topic, there are many supporting examples across multiple industries that help to illustrate and provide creditability to this specific subject matter.

Page 3: Radical Personalization and Forecasting	
BLOCK: Text with bulleted list	
Content	This concept of radical personalization and forecasting relative to Big Analytics can be seen in Healthcare, specifically Clinical Care to patients. Healthcare is moving from a disease-centered model towards a patient-centered model. What are the differences between these two models? • In a **disease-centered model**, physicians' decision making is centered around the clinical expertise and data from the medical evidence and various tests. • In a **patient-centered model**, patients actively participate in their own care and receive services focused on individual needs and preferences, informed by advice and oversight from their healthcare providers. At the same time as this patient-centered care model is being emphasized in healthcare delivery, the potential for 'personalizing' healthcare from disease prevention, disease management, and therapeutics perspective is increasing. Healthcare informatics and advanced analytics (data science) may contribute to this shift from population-based evidence for health care decision-making to the fusion of population and individual-based evidence in healthcare.

	Based on the work of several data scientists in clinical care, the capabilities of Big Data Analytics helps allow for the incorporation of a vast array of disease comorbidities, which were effectively leveraged for personalized disease prediction, management plan, and wellness for an individual patient. This work leveraged the similarities and shared experiences among individuals across several healthcare systems relative to patient history, disease timing, disease progression, prognosis, and wellness strategies. The results were that analyzed data was filtered to result in the personalized plan per patient; therefore, moving from a disease-centered model to a patient-centered model with an emphasis on patient-centered disease prediction and management.
BLOCK: Divider, Continue	
Content	In the same way that results of analyzed clinical data were filtered resulting in the development of a personalized plan per patient, is also true in sales organizations whereby the adoption of Big Data Analytics with the deployment of Machine Learning Algorithms as well as the development of specialized Algorithms for Deep Learning has helped in the development of a personalized plan per customer or by a customer-specific segmentation. Sales organizations seem to generate a lot of unstructured data and historical repositories of data that can be used by Machine Learning Algorithms to help in understanding current and potential customer purchasing trends, competitive products, and how to create effective marketing campaigns to increase sales. This internal data provides the potential for financial gain, increased market share, and competitive advantage if Machine Learning is applied and Advanced Analytics is used to assist in the understanding of that data. Sales Organizations using Advanced Analytics can deploy marketing techniques such as intelligent content and ad placement or predictive lead scoring. By adopting Machine Learning, Sales Organizations can rapidly evolve to meet the constantly changing needs of current and potential customers. Also, Machine Learning Models can be used for customer sentiment analysis, sales forecasting analysis, and customer changing needs and trends. These different types of customer analyzed datasets can be integrated into an organization's product planning and forecasting capabilities relative to their internal Inventory and Warehouse Management functions as supported by an Enterprise Resource Planning (ERP) enterprise system which then can be used into an integrated customer-to-inventory-to-supply chain system. This integrated customer-to-inventory-to-supply chain system can ensure that number of forecast products to be built align to the number of components and subassemblies that are present in their internal Inventory and Warehouse Management locations to meet this forecasted demand but also align to the suppliers who are providing all or most of these components and subassemblies to that organization.

BLOCK: Divider, Divider	
Content	This product planning and forecasting capabilities and their importance to meeting customer demand can be seen in the automotive industry. For example, Ford Motor Company and their supply chain must be efficient in meeting the projected forecasts for an enhanced new Ford F-150 pickup truck. The goal is to have in place an Integrated (Real-Time) Supply Chain Management system that is based on Machine Learning capabilities that enable people and computer-based systems to make data-driven decisions based on data mined and collected and analyzed based on one or more data predictive models. This is not unique to just Ford Motor Company but to all global automobile manufactures and their supply chain. Also, what automobiles are developed, enhanced, retired, and replaced is a biproduct of understanding analyzed customer data and its segmentation patterns as mentioned in the previous paragraph relative to the impact of Machine Learning on sales. Also, Machine Learning Algorithms have been applied to driverless automobiles and are being advanced in terms of its capabilities to date. As previously mentioned, an integrated supply chain process relative to an integrated customer-to-inventory-to-supply chain system. The Supply Chain process is critical to and across many different industries and organizations in those specific industries. In our review of Clinical Care, we examined the impact of Big Data Analytics is changing the paradigm in healthcare from a disease-centered model towards a patient-centered model. The same can be said for Supply Chain analytics and the capabilities that Machine Learning Algorithms provide this business function. For example, with the current global crisis of COVID-19 and its impact on the global worldwide Supply Chain relative to reconfiguring and increasing medical supplies such as pharmaceuticals and equipment was made possible by understanding the analyzed data; therefore, were to increase production outputs and were to expedite its shipment to needed clinical global locations.
BLOCK: Text	
Content	Select the following to learn more about machine learning application to the financial and government sectors,
BLOCK: Interactive, Tabs	
Tab 1	**Financial Sector** Another important industry where Machine Leaning is applied is in the financial sector. The financial industry is subject to various risks, especially when investing. AI technologies help make an informed decision about investments and predict possible risks using data analytics, Deep Learning, and Machine Learning Algorithms as well as comply with governmental and global regulatory requirements. What is unique about the application of Big Data

	Analytics in the financial sector, specifically investments, is the use of Cognitive Agents supported by Intelligent SMART Workflow working with Chatbots to provide their customers with Artificial Intelligent Financial Advisors who can personalize, advise, manage and support customer financial portfolios
Tab 2	**Government Sector** In terms of the government sector, the United States Department of Defense (DoD) and the United Kingdom's Ministry of Defense have deployed Machine Algorithms supported by Cognitive Agents for many years as it pertains Global Positioning Systems (GPS) and its capabilities for pinpointing strategic airstrikes for laser-guided ammunitions.
BLOCK: Text	
Content	Based on these examples of machine learning applied to financial and government sectors, we now have a detailed understanding of Big Data Analytics and its applications across many different industries and government sectors as well as the importance of Big Data applications and the Engineered System Platforms, supported by cloud-based technologies for Machine Learning capabilities. The following LinkedIn Learning video, Basic Forecasting, offers a tutorial on how to conduct basic forecasting of simple data sets using Microsoft Excel. The following article, The Era of Radical Personalization, gives a comprehensive explanation of radical personalization and how big-name brands around the world use it to improve company success.
BLOCK: Text with heading	
Heading	Stop & Think
Content	Consider the business discipline of Customer Relationship Management and how Machine Learning Algorithms can be applied in helping with predicting Customer Demand meeting. What considerations would you have to incorporate into your business strategy?
BLOCK: Divider, Continue	
BLOCK: Text with heading	
Heading	**Additional Resources**

Content	The following resources address concepts such as forecasting, machine learning, and personalization in patient care. You are encouraged to examine these optional readings to gain an understanding of how technology is being used in a business setting. • Automatic machine learning applied to time series forecasting for novice users in small to medium-sized businesses • Deep learning opens new horizons in personalized medicine (Review) • Machine Learning Paradigms: Advances in Data Analytics
BLOCK: Text, Paragraph with Heading	
Heading	What's Next?
Content	We will now explore the capabilities of Machine Learning for addressing unstructured data and the importance of using this data, once it is structured, to maximize your organization's understanding of this data.

Page 4: Unstructured Data: Identifying New Trends and Anomalies
BLOCK: Text
This is a very interesting but critical subject matter for Big Data Analytics to address from a Machine Learning perspective but also an Information Technology Infrastructure one. The rationale for this statement is clustered in many generations of many computer systems-based technologies and different data constructs. Before the modern-day ubiquity of online and mobile applications, databases processed straightforward, structured data. Data models were relatively simple and described a set of relationships between different data types in the database; hence, a Relational Applications Database based on application tables and references supported by this concept of a Primary Key to Foreign Key relationship. This was made possible by the advancements by Oracle and IBM in Relational Database Management Systems in the late 1970s. Before structured and relational data constructs, many organizations across multiple industries and in the government sectors accumulated for at least twenty-five years or more of unstructured data that was referred to as flat files because they were not data relational constructs that had a traditional row and column structures. This unstructured data does not include other types of content, for example, videos, audio files, web pages, and social media messages, and for the most part Relational Applications Databases attempted to address this type of content as storing them as long integer types of strings in a table.

	As a result, Big Data Analytics technologies from an Information Technology Infrastructure perspective has addressed this unstructured data and content in the development of NoSQL databases and Information Management Systems that are autonomous and self-governing using ANNs. Also, using open-source Big Data technologies such as Hadoop Computational Clusters which is a software framework for distributed processing of large datasets across large clusters of computers as well as MongoDB as a document database with a flexible schema. MongoDB was built specifically to handle unstructured data. MongoDB's flexible data model allows for development without a predefined schema which resonates particularly when most of the data in your system are unstructured.
BLOCK: Text	
Content	The following article, Examples of Unstructured Data, explains some of the most common places where unstructured data is collected and how businesses use these platforms to improve their success. While reviewing the article, consider the following questions to yourself. • How would you define unstructured data to someone who has never heard the term before? • Would you agree that in your current place of employment that only 20% of all data collected is structured?
Divider, Divider	
BLOCK: Text with numbered list	
Content	Let's turn our attention to the problem of unstructured data and examine methods for bringing this unstructured data into a relational context through Adaptative Indexing and constructing Computational Clusters for these Probabilistic Databases. The current state of these Probabilistic Databases has minimal index structures that resemble a Relational Applications Databases; therefore, the performance of a Relational Database Management System is closely coupled to the index structures it uses, making index selection an extremely important part of any database deployment. As workloads change, index structures must adapt. Standard Relational Database Management Systems sessions often take an all or nothing approach to this problem, where indexes are discarded and/or built up from scratch, incurring delays during the rebuilding process. A developed class of data structures called *adaptive indexes* removes this limitation by facilitating incremental, online changes to the index. Examples of this class of indexes include: 1. Cracked Databases 2. Adaptive Merge Trees

	3. Hybrid variants Continue reading to learn more about the purposes of adaptive indexes.
BLOCK: Interactive, Tabs	
Tab 1	Purpose 1 Adaptive indexes automatically optimize their physical representations in response to incoming queries, reusing work used to answer the query to also improve subsequent queries.
Tab2	Purpose 2 Adaptive indexing is used as an alternative to classical offline index optimization. Adaptive indexing allows index creation and reorganization to take place automatically and incrementally as a side-effect of query execution.
Tab 3	Purpose 3 Implementations of Adaptive Indexing optimize the index structure using a predefined scheme, resulting in an index and data layout that gradually converges towards a sorted array, B-Tree, or similar data structure, and allows for merging these new indexed data structures that have been created to be now used by Big Data Analytics applications and Information Technology Infrastructure.
BLOCK: Text	
Content	The following video, How AI is making it easier to diagnose disease, describes the use of a unique algorithm in the healthcare industry that can drastically reduce the amount of time and data needed to make a diagnosis. While reviewing the video, answer the following questions: • How did this algorithm simplify the deep learning process? • What is another industry where using this algorithm could be beneficial?
BLOCK: Embed Video	
Video	<iframe width="560" height="315" src="https://www.youtube.com/embed/Mb8x6vLcggc" frameborder="0" allow="accelerometer; autoplay; encrypted-media; gyroscope; picture-in-picture" allowfullscreen></iframe>
BLOCK: Text with heading	

Heading	Additional Resources
Content	The following resources address the concepts of anomalies and trend analysis. You are encouraged to examine the two LinkedIn Learning videos to gain a fundamental understanding of anomalies within data science and how identifying trends is important. 1. Anomaly detection covers anomalies and how they can be beneficial to business operations by discovering untapped value. 2. Trend analysis discusses the importance of trends and how identifying patterns within data can be useful for business decisions.
BLOCK: Text	
Heading	**Stop and Think**
Content	Take a moment and consider the business discipline of Marketing Management. • How can Database Cracking and Adaptive Dynamic Indexing help with taking unstructured and semi-structured data into a relational state for use by Machine Learning Algorithms? • How would this specifically apply to create effective marketing campaigns for new and existing products and services offered by your own organization?
BLOCK: Text	
Content	You are now ready to start your graded assignment for this module. The assignment is to develop a strategy of how you would deploy and use Machine Learning Algorithms in collaboration with Artificial Neural Networks (AANs) to prevent cybersecurity breaches and to train your algorithms to learn the nature and construct of the attack. The value in this assignment that you will gain is the ability to apply these concepts and knowledge into a formulated strategy for execution. To access your assignment and the specific instructions, please return to your course menu or select the 'Assignment and grades' tab in your course menu.
BLOCK: Text, Paragraph with Heading	
Heading	What's Next?

Content	You have reached the end of your learning for new concepts in this module. Next you will review a summary of this module and preview what you will encounter in the next module.

Page 5: Wrap Up	
BLOCK: Text	
Content	Before you continue, please select the following box to acknowledge the completion of your graded **Machine Learning Algorithms & AANs Strategy** assignment. Then select "Continue" to move on to the next part of your module.
BLOCK: Checkbox List	
Content	[*Checkbox*] I have completed and submitted my graded **Machine Learning Algorithms & AANs Strategy** assignment and am ready to learn more!
BLOCK, Divider, Continue (Must complete previous block to continue)	
BLOCK: Text	
Content	Congratulations on completing Module 1! In summary, the subject matter is multi-faceted when you look at Big Data Analytics Machine Learning Algorithms but also the Big Data technologies and infrastructures. This multi-faceted subject matter requires an overall Enterprise Digital Architecture Model that addresses this multi-faceted subject matter in the context of defining the implementation strategy, the technologies, and the logic to deploy them. Having a greater understanding of how the different aspects of Big Data Analytics can impact businesses across several industries is important as you enter Module 2. You will uncover how to best manage your data to make decisions to improve profitability and customer relationships, as well as how digital transformations of your data can increase value across value chains. Let's get started with Module 2!

ASSIGNMENT DIRECTIONS FOR THE LMS (NEO)
(The information is for the LMS Admin & will not display inside of the Articulate Rise Module.)

LMS Assignment Title	Machine Learning Algorithms & AANs Strategy

LMS Assignment Instructions	Assume the role of a project manager. The team you are leading needs to develop a strategy for preventing cybersecurity breaches. The strategy created by you and your team will address how to deploy and use Machine Learning Algorithms in collaboration with Artificial Neural Networks (AANs) to prevent an SQL Injection Attack. Your whole goal is to prevent cybersecurity breaches and to train your algorithms to learn the nature and construct of the attack.
	
	Utilize the **Risk Matrix** spreadsheet for how to model and state your strategy. The matrix allows you to assign your strategy a risk value from 1-3 based on the likelihood of needing to implement the strategy against your attack.
	• '1' represents low probability
	• '2' represents moderate probability
	• '3' is a high probability
	
	Directions
	Create an 11-slide PowerPoint presentation in which you address your strategy using the provided outline. Each slide needs to include a 150-word explanation in the presenter notes for what you have provided visually in the slide. Support your explanations with five supporting resources. You can cite the resources used in this module or you can search for other supporting resources. Use APA formatting where applicable.
	
	Outline
	Slide 1: Title slide
	
	Slide 2-3: Define is a series of recognition patterns (business logic) for SQL Injection Attack.
	
	Slide 4-5: Define (business logic) an algorithm that would quarantine and eradicate the SQL Injection Attack
	
	Slides 6-9. Discuss compliance and risk management strategies specific to series recognition patterns and the algorithm selected for quarantining and eradicating the SQL Injection Attack.
	• Compliance Strategy
	  ○ What comprises a compliance strategy?
	• Risk Management Strategy
	  ○ What comprises a risk management strategy?
	
	Slide 10 Conclusion

	Slide 11 References **Note:** As you create your slides, be sure to include the following key words within the speaker notes and describe how each key word relates to the recognition patterns, algorithm, and/or compliance and risk management strategy. • Real-time Optimization • Strategic Optimization • Radical Personalization • Forecasting • New Trends/Anomalies • Unstructured Data When you have submitted your assignment for grading, please return to your module to continue learning.
Assignment Type	Module Assignment
RUBRIC TO UPLOAD INTO THE LMS	
Rubric Type	Dropbox
Rubric File	AIA Presentation Rubric from NEO Library of Rubrics