Course Code and Title:
TIM-7020 Databases & Business Intelligence

Course Credits:
3

Course Description:
Data drives the world we live in. From self-driving cars to the top apps in the store, all is impacted by data and information. Knowing how to use and store this information is a vital concept for essentially every industry. This course is an advanced examination of concepts and research trends in databases and business intelligence. The student will be exposed to concepts related to these topics from both industry, and leading research venues. Some of these explored topics include business intelligence, solving business problems using data, understanding gaps between theory and practice, future trends in database technology, and creating a research proposal.

Course Learning Outcomes:
1. Evaluate an organization's data management needs and potential solutions. (L5)
2. Evaluate emerging research in data management and business intelligence for its utility in solving organizational data management problems. (L5)
3. Evaluate the gaps between theory and practice in data management and business intelligence. (L5)
4. Propose improvements to theory and practice in data management and business intelligence. (L6)

Course Concepts:
1. Data Management
2. Business Intelligence
3. Emerging Database Technologies
4. Business Applications of Databases

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Course Outline

Section 1: Databases and Business intelligence

Week 1: Creating an Annotated Bibliography
Week 1 – Assignment: Create an Annotated Bibliography (10 points)

Week 2: Solving Business Problems in Data
Week 2 – Assignment: Evaluate Research and Its Impact on Database and Business Intelligence Practice (10 points)

Week 3: Current Research
Week 3 – Assignment: Evaluate a Case Study (10 points)

Section 2: Gaps Between Theory and Practice

Week 4: Database and Data Management: Theory and Practice
Week 4 – Assignment: Analyze Gap Between Theory and Practice in Data Management (10 points)

Week 5: Business Intelligence Theory and Practice
Week 5 – Assignment: Analyze the Gap Between Theory and Practice in Business Intelligence (10 points)

Week 6: Cutting-Edge Database Technology
Week 6 – Assignment: Examine Cutting-Edge Technology (10 points)

Section 3: Research and Application

Week 7: Creating a Research Proposal
Week 7 – Assignment: Create a Research Proposal (20 points)

Week 8: Signature Assignment: Experimentation
Week 8 – Assignment: Recreate an Experiment (20 points)

References

Section 1: Databases and Business intelligence

This first section will orient you to current research that exists in databases, data management, and business intelligence. You should have a good technical understanding of what databases are as well as the concepts of business intelligence. While understanding technical concepts can be useful in innumerable situations, this course is not designed to teach you these technical topics. This course is designed for you to undertake an advanced examination of these concepts and to explore the current research on these topics.

In this section, you will learn about all the various shapes and forms that data comes in. Sometimes it can be as small as a few bits, or as large as thousands of terabytes that require huge data centers. Interestingly, in your careers you will frequently see that the smallest types of data are the most useful—and problematic.

Week 1: Creating an Annotated Bibliography (10 points)

Data management is a popular topic in today's world where there are increasingly large amounts of digital data that need to be analyzed. There are many types of researchable business problems around the topic of data management. How can we keep our data more secure? How can we be more efficient with our space when storing our data? Further, how can we store data that doesn't fit standard relational rules of formatting? The new technologies of tomorrow stem, at least in part, from problems that are researched in universities and laboratories today.

This week, you will conduct a review of current literature pertaining to data management and business intelligence. You will identify the characteristics of the related technologies and determine their benefits to the business world. This assignment serves to help orient you to current research that exists, and it will help prepare you for your assignments for Week 7 and 8.

Heads-Up to the Signature Assignment

Your culminating Signature Assignment (due in Week 8) will be a reflection of all that you have learned within the course, and it may require that you complete some work ahead of time. To ensure you are prepared and have adequate time to complete this assignment, please review the instructions by looking ahead to Week 8. You can contact your professor if you have questions.

Books & Resources:

University of Maryland University College. (n.d.). How to write an annotated bibliography - APA style. http://www.umuc.edu/library/libhow/bibliography_apa.cfm
Review website

Tan-de Ramos, J. (2015). Effects of teaching strategies in annotated bibliography writing. *Journal of Education and Practice, 6*(7), 54-57.
https://eric.ed.gov/?id=EJ1083130
Review website

Stacks, G., Karper, E., Bisignani, D., & Brizee, A. (2013, March 10). Annotated bibliographies. *Purdue OWL*.
https://owl.english.purdue.edu/owl/resource/614/1/
Review website

Week 1 – Assignment: Create an Annotated Bibliography

Conduct a comprehensive search of the literature and locate 10 articles concerning data management and business intelligence. You will want to concentrate on peer-reviewed journal articles and conference proceedings for the past three years. Then, create an annotated bibliography of all 10 articles. Each annotation should be at least a page in length. Your entries should be APA formatted, and must have a logical flow and transition between them. The final submission must be in APA format and contain a title page, table of contents, and reference list.

The process:

1. An annotated bibliography is not merely a summary of the article.
2. You will start with an appropriate APA-formatted reference at the top of the page.

3. Your annotation should include these items:

- *Summarize:* Some annotations merely summarize what the source says. That is not correct for this assignment—your summary should include an analysis of the information as well. What are the main arguments? What is the purpose of this article? What topics are covered? What type of research was conducted? What were the results?

- *Assess*: After summarizing a source, you should evaluate it. Is it a useful source? Is the information reliable? Is this source biased or objective? Were there any limitations? What is the goal of this source? What is its relevance to the topic? What are the study's strengths and weaknesses?

- *Reflect*: Once you've summarized and assessed a source, you need to ask how it fits into your research. Was this source helpful to you? How does it help you shape your argument? How can you use this source in your research project? Has it changed how you think about your topic?

This annotated bibliography should provide sufficient background on the topic to provide a foundation for additional scholarly work.

Length: 10 annotations, not including title and reference pages

Your assignment should demonstrate thoughtful consideration of the ideas and concepts presented in the course by providing new thoughts and insights relating directly to this topic. Your response should reflect scholarly writing and current APA standards. Be sure to adhere to Northcentral University's Academic Integrity Policy.

Upload your document and click the *Submit to Dropbox* button.

TIM-7020 Assignment Grading Rubrics

Criteria	Achievement Level 1 (full points): Criterion included and meets all requirements	Achievement Level 2 (partial points): Criterion included, not fully meeting requirements	Achievement Level 3 (partial points): Criterion included, minimally meets requirements	Achievement Level 4 (no points): Criterion not included	Total Points
Criterion 1, 3 points: Writing Quality	Only very minor problems with text/grammar (3)	Some issues with text/grammar but nothing significant (2)	Moderate issues with text/grammar (1)	Significant problems with text/grammar (0)	
Criterion 2, 1 point: References	Proper amount of references used and no issues with formatting (1)	Minor issues at missing references or minor problems with formatting (.75)	Attempt at adding references, but improperly used when attempt was made (.5)	No References used (0)	

Criterion 3, 2 points: Properly Addressed Issues	All items properly addressed and no significant unanswered questions about direction or process used (2)	Minor issues with work's content including recommendations or reasoning (1.5)	Moderate issues with work's content including recommendations or reasoning (1)	Significant issues with work's content including recommendations or reasoning (0)	
Criterion 4, 2 points: Appropriately Selected Literature Reviews	All related works systematically selected, all relevant (2)	Most related works systematically selected, most relevant (1.5)	Some related works systematically selected, some relevant (1)	Totally irrelevant selected research topics (0)	
Total Points					

Learning outcomes: 2, 3

Week 2: Solving Business Problems in Data (10 points)

There are many types of researchable business problems regarding the topic of data management. Research can help solve any number of known or unknown organizational problems, and data management is no exception. One of more recent issues is how to deal with scalability issues. Storage may be cheap; but large amounts of data can cause other problems, such as performance issues and increasing data access times. There are plenty of researchable topics including data quality, data security, data access, data mining, etc.

Data is frequently an imperative ingredient to any decision-making process in our world. Everything from billion-dollar business acquisitions to what app you download is driven by data. A frequent monumental challenge is determining how to extract meaningful information from large amounts of data. The first step to gathering meaningful information from data is to determine what you are looking for, and how you want to use the data. This may seem obvious, but it is far too often a mistake that many people in business and academia frequently make. Just a few of the high-level business questions that can be addressed through the use of data include:

- When to go to market with a new product.
- If the new product is viable.
- What traits/features the product should have.
- How much of the product you could expect to sell.

In this course, and other courses as NCU, you will learn how to collect, analyze, interpret, and understand data from a wide range of sources, for a wide range of reasons.

Books & Resources:

Henry, R., & Venkatraman, S. (2015). Big data analytics the next big learning opportunity. *Academy of Information & Management Sciences Journal, 18*(2), 17-29. http://proxy1.ncu.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=111483026&site=eds-live

Week 2 – Assignment: Evaluate Research and Its Impact on Database and Business Intelligence Practice

For this assignment, you will continue your research by analyzing the articles from the first week's assignment and their ability to contribute to professional practice in databases and business intelligence.

First, select an organizational data management problem that might exist in the real world. Then evaluate all of your articles in terms of their ability to help solve your organizational data management problem. Write a paper in which you address the following:

1. Identify the organizational data management problem that needs to be addressed. Support the existence of the problem with at least three references (these may be scholarly or industry sources, but should trend towards industry sources).
2. Outline the problem and describe its impact: Whom does it affect and to what extent? Support the impact of the problem with at least three references.
3. Why/how does this problem exist? Determine the underlying cause. Support the cause of the problem with at least three references.
4. Evaluate the articles for their utility in solving the organizational data management problem. Indicate whether the findings are appropriate and if they provide useful information for practitioners. Support the ability of the research to provide valued results with at least three references.

Support your paper with scholarly and industry resources. In addition to these specified resources, other appropriate scholarly resources, including seminal articles, may be included. There should be a total of at least 10 external scholarly references.

Length: 5-7 pages

Your assignment should demonstrate thoughtful consideration of the ideas and concepts presented in the course by providing new thoughts and insights relating directly to this topic. Your response should reflect scholarly writing and current APA standards. Be sure to adhere to Northcentral University's Academic Integrity Policy.

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Criterion 2, 1 point: References	Proper amount of references used and no issues with formatting (1)	Minor issues at missing references or minor problems with formatting (.75)	Attempt at adding references, but improperly used when attempt was made (.5)	No References used (0)	
Criterion 3, 4 points: Properly Addressed Issues	All items properly addressed and no significant unanswered questions about direction or process used (4)	Minor issues with work's content including recommendations or reasoning (3)	Moderate issues with work's content including recommendations or reasoning (2)	Significant issues with work's content including recommendations or reasoning (0)	
Total Points					

Learning outcomes: 1, 3

Week 3: Current Research (10 points)

Think about the last decision that you made. This could be the food you ate or the car you purchased. Now think of the data used in this decision-making process. As you've been seeing in this course, data drives virtually all decisions being made. Due to its importance, data is a frequent topic in research. New ways are constantly being developed to use, collect, and analyze data. Since data is such an important research topic, numerous venues are devoted to studying and using data.

The primary purpose this week is for you to become acclimated with various venues which focus on the use of data in research. Many of the venues listed below focus on big data, while others focus on how data can be used to assist the software engineering process and understand app tendencies.

- http://2017.msrconf.org – Mining Software Repositories
- http://www.ieeebigdata.org/2017/ - IEEE Big Data Congress
- http://bigdata.stanford.edu - Big Data in Bio Medicine Conference
- http://cci.drexel.edu/bigdata/bigdata2017/ - IEEE Big Data
- http://www.sigmod2017.org - ACM SIGMOD- PODS
- http://www.kdd.org/kdd2017/ - SIG KDD Conference on Knowledge Discovery and Data Mining

While not a formal assignment for the week, you should find a few current venues that are focused on data in a specific area of your interest. This could be data in urban planning, understanding user tendencies for apps, or

medical planning. Read at least one or two papers from these venues and gain an understanding of some of the common research areas using data in your chosen area.

Books & Resources:

Pathak, N. (2008). *Database management system. [electronic resource]*. Mumbai [India]: Himalaya Pub. House, 2008.http://proxy1.ncu.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=cat01034a&AN=nu.EBC3011378&site=eds-live Read Introduction, Data Modeling Using the Entity Relationship Model

Week 3 – Assignment: Evaluate a Case Study

Case Study

BlackBean is a tea and dessert company based in Hanoi, Vietnam. Established in 2008, BlackBean has expanded from 20 stores in Vietnam to add 40 more locations throughout Asia. To support regional growth, BlackBean wanted better insight into business operations.

Each store sent point-of-sale (POS) data to the corporate headquarters, where managers manually entered the information into spreadsheets. The stores also monitored other sources such as social media, but it was difficult to make connections between the disparate sources of information. "Our main challenge involved reporting," says Mark Smith, Senior Manager at BlackBean. "There were a lot of questions that we have about customer behavior. Without insight into regional demand, it's very difficult to grow our business."

In addition to wanting to more targeted promotions, the company wanted to improve product distribution. BlackBean had built its reputation on the quality of its highly perishable ingredients, and getting them to the right place at the right time was critical to the company's success. "We use a lot of fruits in our desserts, and if they don't taste right, then we lose our competitive advantage," says Smith.

To meet its goals, BlackBean knew it needed tools capable of pulling together disparate sources of information. However, it also wanted to implement a solution without the burden of purchasing and maintaining additional on-premises infrastructure. BlackBean operates with a small IT team and has little interest in building out a data center. Instead, the company wants a solution that will be easy to use and manage. As Smith points out, "Our employees are not IT professionals, so a highly complex system will not work out for us."

Assignment Instructions:

Write a business proposal for Mark Smith at BlackBean that outlines the following:

1. Analyze the current state of BlackBean. What are the company's strengths and weaknesses?
2. What kinds of functionality does BlackBean need? What kinds of considerations are there? (i.e., building competitive advantage, better decision-making capabilities, etc.)
3. What kinds of tools would you recommend?
4. Research and evaluate potential solutions for BlackBean.
5. Choose the optimal solution for BlackBean. Justify your choices.

You may make assumptions about the resources and other features of BlackBean as necessary to fill in the gaps for your proposal.

Aside from using APA format for references and coversheet, do not structure your assignment as an academic report. Structure your assignment as a business proposal. Support your proposal with at least ten scholarly or industry references.

Length: 5-7 pages, not including title and reference pages

Your assignment should demonstrate thoughtful consideration of the ideas and concepts presented in the course by providing new thoughts and insights relating directly to this topic. Your response should reflect scholarly writing and current APA standards. Be sure to adhere to Northcentral University's Academic Integrity Policy.

Upload your document and click the *Submit to Dropbox* button.

TIM-7020 Assignment Grading Rubrics

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Criterion 2, 1 point: References	Proper amount of references used and no issues with formatting (1)	Minor issues with missing references or minor problems with formatting (.75)	Attempt at adding references, but improperly used when attempt was made (.5)	No References used (0)	
Criterion 3, 4 points: Properly Addressed Issues	All items properly addressed and no significant unanswered questions about direction or process used (4)	Minor issues with work's content including recommendations or reasoning (3)	Moderate issues with work's content including recommendations or reasoning (2)	Significant issues with work's content including recommendations or reasoning (0)	
Total Points					

Learning outcomes: 2, 3, 4

Section 2: Gaps Between Theory and Practice

Theory and practice in any topic not only go hand-in-hand, but also act as a conflicting source. Practice needs to be driven by theory and needs a firm foundation in order to be effective. Good practice must be well thought out and systematically designed. However, theory is frequently useless if it cannot be properly implemented and is not grounded in real-world concepts. Theoretical approaches when put into practice without considering the

environment or situations are often doomed to fail. They need to consider real-world obstacles and constraints. Data management is no different—to form a robust data management plan, you need to understand the current situation and also understand good theoretical practices and policies.

The primary objective for the next several weeks is to provide you with a firm foundation for understanding data policies, theory, and practices along with understanding how they fit into the business world. You will also gain an understanding of different technologies that can be leveraged to assist with these tasks.

Week 4: Database and Data Management: Theory and Practice (10 points)

What kinds of theories exist when it comes to databases, data management, and business intelligence? For example, researchers may theorize that using a cloud-based strategy for hosting will increase scalability and flexibly and lower costs. In practice, some organizations' sensitive data cannot go to the cloud. How does this effect our expectation of lower costs? Theory versus practice is an importance consideration when planning a research project.

Most people just take database technology for granted—it just works. However, there are underlying theoretical frameworks for data management and for database technology, including its relational design. Normalization, for example, has a theoretical and a practical component. In theory, normalization is good and helps reduce errors. In practice, however, too much normalization can result in poor performance. So what common theories exist? As organizations' data needs have changed and continue to change over time, database technology continues to evolve as well. This opens the door for more theories and more research, doesn't it? The topics concerning databases and data management are too numerous to list here. This week, you will conduct research in order to identify the existing theories for databases and data management.

Books & Resources:

Pathak, N. (2008). *Database management system. [electronic resource]*. Mumbai [India]: Himalaya Pub. House..http://proxy1.ncu.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=cat01034a&AN=nu.EBC3011378&site=eds-live
Read Relational Data Model and Language, Introduction to SQL

Week 4 – Assignment: Analyze Gaps between Theory and Practice in Data Management

Research existing theories for databases and data management. Identify common theories, and explain if these theories have evolved over time. Then, research how these technologies are used in practice. You will likely have to include business journals and practical application of the concepts. Choose at least one major theory for further gap analysis. Write an assessment outlining the following:

1. Explain the theory that was chosen.
2. Provide your analysis of the gap between theory and practice (industry literature can help show the state of practice and help you determine the gaps compared with the scholarly literature).
3. Outline the root cause of this gap and include the effect of the gap. Whom or what does it impact? Is it a positive or negative impact? Provide examples to support your findings.

NOTE: Do not select database normalization for your theory.

Support your assessment with a minimum of five scholarly resources. In addition to these specified resources, other appropriate scholarly resources, including seminal articles, may be included.

Length: 5-7 pages, not including title and reference pages

Your assignment should demonstrate thoughtful consideration of the ideas and concepts presented in the course by providing new thoughts and insights relating directly to this topic. Your response should reflect scholarly writing and current APA standards. Be sure to adhere to Northcentral University's Academic Integrity Policy.

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Criterion 3, 4 points: Properly Addressed Issues	All items properly addressed and no significant unanswered questions about direction or process used (4)	Minor issues with work's content including recommendations or reasoning (3)	Moderate issues with work's content including recommendations or reasoning (2)	Significant issues with work's content including recommendations or reasoning (0)	
Total Points					

Learning outcomes: 3, 4

Week 5: Business Intelligence Theory and Practice (10 points)

Last week, we discussed databases and data management, and the gap between theory and practice. This week, the topic is business intelligence (BI). BI is often referred to as an extension of the data in databases. While the data may be the same, or a derived form of the data, BI is much more than just a copy of a database. BI can provide a predictive view of a business's operations. BI systems allow organizations improved enterprise decision-making capabilities. BI aims to be a comprehensive, enterprise-wide platform. The question is: Does that solution work in all organizations? This question may highlight one of the differences between theory and

practice.

There are many types of various BI related tools that offer varying advantages. Many types of BI technology uses data visualization techniques for design charts and other useful infographics along with tolls for producing BI dashboards and even performance score hands which display business metrics and other performance metrics. In addition to providing robust and accurate data, these tools frequently make the data much easier to understand. Other interesting components of BI tools include advanced analytics, data mining, big data analytics, predictive analysis, statistical analysis, and text mining. Data scientists frequently uses these tools alongside statistics and predictive models However, as these tools become more widespread and easy to use, more and more groups with less formal training in data and data analytics are effectively using these tools. Regardless of the tools, they all generally function the same way by collecting raw data from various sources; integrating, consolidating and cleansing the data; and then using data quality tools to ensure its accuracy before analyzing it.

Books & Resources:

Obeidat, M., North, M., Richardson, R., Rattanak, V., & North, S. (2015). Business intelligence technology, applications, and trends. *International Management Review, 11*(2), 47-56. http://proxy1.ncu.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=109929818&site=eds-live

Pathak, N. (2008). *Database management system. [electronic resource]*. Mumbai [India]: Himalaya Pub. House..http://proxy1.ncu.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=cat01034a&AN=nu.EBC3011378&site=eds-live
Read Database, Design and Normalization, Transaction Processing Concepts

Week 5 – Assignment: Analyze the Gap Between Theory and Practice in Business Intelligence

The journal article listed in this week's resources provides a supplemental information that examines current theory and practice of BI.

Conduct additional research on existing theories in business intelligence (BI). What common theories exist? Have the theories evolved over time? Now, research how these theories are used in practice. You will likely have to include business journals and practical application of the concepts. Choose at least one major theory for further gap analysis. Write an assessment outlining the following:

1. Explain why the theory that was chosen.
2. Provide analysis of the gap between theory and practice (industry literature can help show the state of practice and help you determine the gaps compared with the scholarly literature).
3. Outline the root cause of this gap and include the effect of the gap. Whom or what does it impact? Is it a positive or negative impact?

Support your paper with a minimum of five scholarly resources. In addition to these specified resources, other appropriate scholarly resources, including seminal articles, may be included.

Length: 5-7 pages, not including title and reference pages

Your assignment should demonstrate thoughtful consideration of the ideas and concepts presented in the course by providing new thoughts and insights relating directly to this topic. Your response should reflect scholarly writing and current APA standards. Be sure to adhere to Northcentral University's Academic Integrity Policy.

Upload your document and click the *Submit to Dropbox* button.

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Criterion 2, 1 Point: References	Proper amount of references used and no issues with formatting (1)	Minor issues with missing references or minor problems with formatting (.75)	Attempt at adding references, but improperly used when attempt was made (.5)	No References used (0)	
Criterion 3, 4 points: Properly Addressed Issues	All items properly addressed and no significant unanswered questions about direction or process used (4)	Minor issues with work's content including recommendations or reasoning (3)	Moderate issues with work's content including recommendations or reasoning (2)	Significant issues with work's content including recommendations or reasoning (0)	
Total Points					

Learning outcomes: 3, 4

Week 6: Cutting-Edge Database Technology (10 points)

Relational databases have been around for 40 years. More recently, the need for database solutions that do not strictly adhere to the traditional rules of relational databases has grown based on changing needs of organizations. Traditional databases strictly adhered to an ACID (atomicity, consistency, isolation, durability) test. Newer technology does not. Another new technology involves an open-source software framework designed for distributed storage and processing of large datasets. What does this mean? Big data! Many times, you can find the newest ideas and research in conference proceedings.

An emerging area in data storage is No-SQL databases, which represents a tremendous shift from the traditional relational databases. Relational databases represent very structured ways of storing data—using rows, columns, and schemas. No-SQL databases, such as MongoDB, do not rely on these structures and represent a much more flexible data model. While traditional relational databases definitely offer many advantages, No-SQL databases offer tremendous advantages when seeking to store unstructured data. Common examples of unstructured data include user and session data; chat, messaging, and log data; time series data, such as IoT and device data; and large objects such as video and images.

While not a required activity for the week, you should download and use MongoDB <www.MongoDB.com> or another No-SQL database for a simple data storage activity. Conduct a simple tutorial to better understand how No-SQL databases work.

Books & Resources:

Jiang, W., Zhang, L., Liao, X., Jin, H., & Peng, Y. (2014). A novel clustered MongoDB-based storage system for unstructured data with high availability. *Computing*, *96*(6), 455-478. doi: 10.1007/s00607-013-0355-8 http://proxy1.ncu.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=96108112&site=eds-live

Week 6 – Assignment: Examine Cutting-Edge Technology

For this assignment, research cutting-edge technologies in the area of databases, data management, big data, business intelligence, cloud technology, etc. You should assume that you are presenting to the management group at your company, with the intention of having them adopt the technology for one of their products. If you do not currently work for an organization, you may develop a hypothetical situation.

Choose one cutting-edge technology and research it in depth. This technology *must* be cutting edge and, therefore, should not yet have wide adoption in industry.

Prepare a PowerPoint (or similar technology) presentation, in which you do the following:

1. Identify the new technology and provide a comprehensive discussion of the new technology's functionality.
2. Discuss the new technology's advantages and disadvantages.
3. Discuss the evolution of the technology. Contrast its current functionality with the functionality of its predecessors.
4. Evaluate the new technology in terms of the business solutions that it would potentially address.

In addition to your presentation, create a brief video in which you summarize your presentation for management. To create a video note, select the Record video option in the assignment submission area. You will need your webcam to complete this video. Press the New Recording button when you are ready to record your video note and the Stop Recording when finished. Click the Add button to include the video in your assignment submission.

Support your presentation with at least five scholarly resources. In addition to these specified resources, other appropriate scholarly resources may be included.

Length: 12-15 slides, not including title and reference slides

Speaker notes: 150-200 words per slide.

Video length: 2-3 minutes

Your presentation should demonstrate thoughtful consideration of the ideas and concepts presented in the course by providing new thoughts and insights relating directly to this topic. Your response should reflect scholarly writing and current APA standards. Be sure to adhere to Northcentral University's Academic Integrity Policy.

Upload your document and click the *Submit to Dropbox* button.

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Criterion 2, 1 point: References	Proper amount of references used and no issues with formatting (1)	Minor issues with missing references or minor problems with formatting (.75)	Attempt at adding references, but improperly used when attempt was made (.5)	No References used (0)	
Criterion 3, 4 points: Properly Addressed Issues	All items properly addressed and no significant unanswered questions about direction or process used (4)	Minor issues with work's content including recommendations or reasoning (3)	Moderate issues with work's content including recommendations or reasoning (2)	Significant issues with work's content including recommendations or reasoning (0)	
Total Points					

Learning outcomes: 1, 2

Section 3: Research and Application

Conducting research is a challenging but rewarding process. Performing quality research allows the researcher the ability pursue areas that may largely have gone unexplored, ones that may solve key business or academic

questions. Performing quality research is a good way to not only grow yourself, but also—most importantly—add to the body of knowledge in your field.

There are several common steps performed in essentially any research project.

1. Formulate the problem statement.
2. Create research questions.
3. Create a hypothesis. (i.e., what do you believe and anticipate finding?)
4. Create a research plan.
5. Create an evaluation plan.
6. Collect data.
7. Perform evaluation.
8. Analyze results.
9. Document and analyze findings.

In the final two weeks of the course, you will gain a further understanding of the research process by creating a research proposal and conducting a brief experiment.

Week 7: Research Proposals (20 points)

This week, you will create a formal research proposal. Research proposals represent clear and concise summaries of your proposed work, and lay the foundation for any successful research project. One of the primary objectives of a research proposal is to:

1. Describe the research objectives.
2. Identify the specific problem(s) you intend to solve.
3. Articulate the research questions.
4. Discuss how the research will be conducted.
5. Elaborate on what the research will seek to answer.
6. Clarify what the research will *not* seek to answer.
7. Outline the possible tasks for conducting research.

One way to think about a research proposal is like considering it a requirements document. Without knowing the requirements for a project, the project is doomed to fail. Without knowing the requirements and objectives for a research project, the research project is doomed to fail. When properly written, a good research proposal can guide the vast majority of a research project. A good research proposal will also provide the reader confidence in both your research area and how you plan to conduct your research. One method of having your research proposal evaluated is to ask a friend to review it. Ask them to describe what your primary objectives are, and if they have confidence in your plan.

There are resources that you might find useful in the NCU Academic Success Center.

Books & Resources:

Writing Successful Science Proposals, Second Edition. (2009). *Kirkus Reviews*, *77*(17), 5. http://proxy1.ncu.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=edsebk&AN=317209&site=eds-live
Read Chapter 1

Creating Week 7 – Assignment: Create a Research Proposal

Your proposal must focus on a topic within the database and knowledge management domain. Your proposal must be in APA format, contain at least ten scholarly peer-reviewed resources academic references, and be of the quality expected of doctoral-level work. The proposal may be an extension of a previous submission in the course. This proposal should intrigue your audience and be research worthy. It could include a completely new topic derived from the readings and research. If in doubt, please share your idea with your professor and request feedback. Write a ten-page research proposal (not including the title page, table of contents, and reference list) that contains the elements listed below:

- Title Page
  - Title: The title of your work should be concise and describe what your research will entail.
  - Student Name
  - Course Name and ID
  - University
  - Date
- Table of Contents
- Background
  - This section should provide enough information so that the reader understands the general context, settings, and basis for the proposed research. A non-expert may read the proposal, so ensure there is sufficient framing and discussion of the underlying concepts.
- Problem Statement
  - This section should focus on the presentation of a literature-supported open research question or problem that must be addressed. Additional areas should include detailed discussions of its scope, nature, what the problem is, how it developed or evolved into a problem, why it is a problem, and a brief discussion as to the other works that establish it as a problem within the literature.
- Goal
  - This section provides a concise definition of the goal of the study, what it will accomplish, and how it will be measured. That is, how you will define success and failure of the study (if applicable)?
- Relevance and Significance
  - This section provides additional support for the problem statement and goal by discussing why the problem exists, who is affected by it, and the impact of the problem. Additionally, discuss the study's significance and how its outcomes will address the stated problem.
- Literature Review
  - This section will focus on clearly identifying the major areas that the research will focus on to establish a foundation of the study within the body of knowledge. The presentation of literature is an expansion of an annotated bibliography that justifies the problem, hypothesis, impact, and significance of the study.
- Approach
  - A detailed explanation of how the study will be undertaken and how the goal will be achieved. This should take the form of a discussion of the methodology used, each step and milestone, with an explanation of each. Ensure that the approach is supported by the literature, as it cannot be based solely on opinion or experience.
- References

Support your paper with scholarly and industry resources. In addition to these specified resources, other appropriate scholarly resources, including seminal articles, may be included. There should be a total of at

least ten external scholarly references.

Length: 10 pages, not including title, table of contents, and reference pages

Resources: A minimum of 10 scholarly resources.

Your research proposal should demonstrate thoughtful consideration of the ideas and concepts presented in the course by providing new thoughts and insights relating directly to this topic. Your response should reflect scholarly writing and APA standards. Be sure to adhere to Northcentral University's Academic Integrity Policy.

Upload your document and click the *Submit to Dropbox* button.

CLOs: 2, 4

TIM-7020 Assignment Grading Rubrics

Criteria	Achievement Level 1 (full points): Criterion included and meets all requirements	Achievement Level 2 (partial points): Criterion included, not fully meeting requirements	Achievement Level 3 (partial points): Criterion included, minimally meets requirements	Achievement Level 4 (no points): Criterion not included	Total Points
Criterion 1, 3 points: Writing Quality	Only very minor problems with text/grammar (3)	Some issues with text/grammar but nothing significant (2)	Moderate issues with text/grammar (1)	Significant problems with text/grammar (0)	
Criterion 2, 1 Point: References	Proper amount of references used and no issues with formatting (1)	Minor issues the missing references or minor problems with formatting (.75)	Attempt at adding references, but improperly used when attempt was made (.5)	No References used (0)	
Criterion 3, 4 points: Properly Addressed Issues	All items properly addressed and no significant unanswered questions about direction or process used (4)	Minor issues with work's content including recommendations or reasoning (3)	Moderate issues with work's content including recommendations or reasoning (2)	Significant issues with work's content including recommendations or reasoning (0)	
Total Points					

Learning outcomes: 2, 4

Week 8: Signature Assignment: Experimentation (20 points)

In the realm of technology and innovation, experimentation is a valid form of research. You should still have a problem statement, research questions, and hypotheses that must be tested. At its basic form, experimentation involves the manipulation of something under controlled circumstances and the observed effects of that manipulation. The independent variable is the condition being manipulated and the dependent variable involves the effects of that manipulation.

Experiments are an intricate part of conducting research. Your research needs to be repeatable so that a) others can verify your findings, b) others can learn from your work, and c) researchers can expand upon your work. It is frustrating for researchers when they are unable to recreate existing research due to a lack of information and details, or due to technical issues. Experiments come in a variety of shapes and sizes. Experiments could focus on users and involve human subjects, or experiments could involve running technical analysis on thousands of computers concurrently.

Good experiments begin with a good experimentation plan. Bad experiments begin with a bad plan. This sounds simple, but it is a mistake frequently made by even seasoned researchers. A good experiment will systematically collect and analyze information, will be thoroughly tested to ensure that it is collecting accurate data, and will be asking proper questions. When conducting experiments, you need to be ready for a wide variety of possibilities. This is part of the "fun" of conducting research. If research was easy, then everyone would do it.

Books & Resources:

Pathak, N. (2008). *Database management system. [electronic resource]*. Mumbai [India]: Himalaya Pub. House..http://proxy1.ncu.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=cat01034a&AN=nu.EBC3011378&site=eds-live
Read Concurrency Control Techniques, Data Mining and Data Warehousing

Week 8 – Assignment: Recreate an Experiment

Throughout the course, you have been learning about different areas of research in databases and business intelligence. Your task for this week is to recreate an experiment conducted in a recent research paper. Select a study to recreate which has been published in the last two years. Be sure to select a study that is repeatable using a provided dataset.

Once you have selected an interesting research paper, address the following:

- Describe the issue addressed. Indicate why is it important and if this is an agreed-upon concern.
- Describe what was accomplished by the study and what was not achieved.
- Describe the methodology utilized in conducting the study. Determine if it was appropriate and justify your response.
- Describe the study results and the contribution it made to the body of knowledge, if any.
- Describe possible extensions to the research, if any. In what ways can the study be enhanced or modified to provide additional value? Discuss any limitations or assumptions held within the study and how they can be addressed.
- Present the study's experiment that will be reproduced. Be sure to outline the setup and resources utilized.

- Determine how you will reproduce the experiment. Explain how your experiment differs from the original and in what ways were they the same. How do your results compare with the original results, and what conclusions can be drawn with the additional data provided by your experiment?
- Finally, reproduce the experiment and document the setup, procedure, and results. Create any tables, graphs, raw results, or aggregate reports that would allow for direct comparison with the original study.

Support your paper with scholarly and industry resources. In addition to these specified resources, other appropriate scholarly resources, including seminal articles, may be included. There should be a total of at least 10 external scholarly references.

Length: 10 pages

Your assignment should demonstrate thoughtful consideration of the ideas and concepts presented in the course by providing new thoughts and insights relating directly to this topic. Your response should reflect scholarly writing and APA standards. Be sure to adhere to Northcentral University's Academic Integrity Policy.

Upload your document and click the *Submit to Dropbox* button.

TIM-7020 Assignment Grading Rubrics

Criteria	Achievement Level 1 (full points): Criterion included and meets all requirements	Achievement Level 2 (partial points): Criterion included, not fully meeting requirements	Achievement Level 3 (partial points): Criterion included, minimally meets requirements	Achievement Level 4 (no points): Criterion not included	Total Points
Criterion 1, 2 points: Writing Quality	Only very minor problems with text/grammar (2)	Some issues with text/grammar but nothing significant (1.5)	Moderate issues with text/grammar (1)	Significant problems with text/grammar (0)	
Criterion 2, 1 point: References	Proper amount of references used and no issues with formatting (1)	Minor issues at missing references or minor problems with formatting (.75)	Attempt at adding references, but improperly used when attempt was made (.5)	No References used (0)	
Criterion 3, 3 points: Properly Addressed Issues	All items properly addressed and no significant unanswered questions about direction or process used (3)	Minor issues with work's content including recommendations or reasoning (2)	Moderate issues with work's content including recommendations or reasoning (1)	Significant issues with work's content including recommendations or reasoning (0)	

Criterion 4 2 points: Appropriately Selected Literature Reviews	All related works systematically selected. All relevant (2)	Most related works systematically selected, most relevant (1.5)	Some related works systematically selected, some relevant (1)	Totally irrelevant selected research topics	
Total Points					

Learning outcomes: 2, 4