

**BUSINESS ANALYTICS CAPSTONE**

**Project Description**

1. **Motivation(s):** Please provide a brief background on your business and articulate which business opportunity or problem motivates this data analytics project. Please also briefly articulate how this data analytical project is likely to add business value to your firm.

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| **Business background**  Founded in 2009, VisiQuate offers proven solutions that manage the volume, variety, and velocity of Big Data. The company’s enterprise-scale Business Analytics integrate and simplify complex data and present it as insights and actionable workflows. For users at all levels, the app-like visualizations feel more retail than corporate. Hidden root causes, trends, and opportunities become clear, and lead directly to real-world results. VisiQuate clients also benefit from the collective experience of industry domain leaders who help them achieve the best performance outcomes. Headquartered in Santa Rosa, CA, VisiQuate currently serves clients in healthcare, energy, and other industries. For more information, visit www.visiquate.com or contact info@visiquate.com.  **Business opportunity or problem that motivates this project**  Denied claims occur when the third-party payer (i.e., Blue Cross, Aetna, etc.) does not pay or only partially pays a submitted billed claim. Denials serve as a leading indicator foretelling what might be written off to bad debt. More importantly, denials are a lagging indicator showing where there are breakdowns in the pre-bill, claim generation process.  Managing the denials process is typically a manual process that involves skilled resources that identify defects in the denied claim using experience and generalized information from the payers as their guide.    In all, denials have a negative impact on a health care provider’s ability to collect on services rendered to patients. This is avoidable waste in the reimbursement process.  Essentially, denials:   * Increase the cost to collect what is due Paradise Healthcare * Delay the reimbursement time by 30 days or more * Devalue the Accounts Receivable asset   The outcome of this project will be to identify variables or a profile of variables that can predict the likelihood of future denied claims before they are submitted to the payer.  **If done well, how and why is this project likely to add business value to your firm?**  The output from the project will be used as requirements for future product development efforts. We expect that providers who use this services will reduce their cost to collect, improve patient relationships, and increase cash collections. Each of these attributes will benefit the bottom line for providers and allow them to make investments in clinical operations. |

1. **Proposed business question(s):** Please frame the business question(s) that you are asking the student team to answer in this project with data analytics.

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| **List of business questions to be answered in this project**   1. Can data modeling be used to build profiles that predict the likelihood that a claim will be denied before it is submitted to a payer? 2. To what degree of certainty can we assure a CFO that holding the claim until it is cleansed of any denial-ready defect will lead to a positive outcome (e.g., quicker reimbursement than if it went through the denials process, higher reimbursement, etc.)? 3. What would be the best mechanism for presenting the propensity to deny findings of each claim? 4. Is there a noticeable in reimbursement rates between claims with no denial activity and ones with a first pass denial? |

1. **Data: please see the data related question in the bullet points below and address them to the best of your knowledge.**

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| DATA:   * Provided data will be in a structured, text format that contains all of the available variables. * Data will be provided via a secure, VPN connection. Students will need access to software, such as FileZilla, to retrieve the data from the server. These data will be available prior to the start of the project so that we can be sure that all assumptions and interpretations are known in advance. * Each record will constitute an extensive longitudinal patient record, de-identified for public use * All joins will be done in our ETL process to eliminate any questions and to provide the data in the exact format that it is used for analysis * Industry subject matter experts will weigh in on the data request before it is compiled, lessening the chance that important information would be excluded from the project * Two years of historical, closed accounts will be provided for model development. Additional, open accounts will be provided for testing future outcomes * Data will come from a demonstration environment which was based on live, de-identified client data. These data have, at some point, been reconciled, production data for a real client * No additional external data will be necessary for the students to research or bring into the project. |

1. **Data processing environment:** All data will be secured and access given prior to the start of the semester. VisiQuate will create a secure VPN connection for students to transfer to their respective devices. No access to VisiQuate software or proprietary tools will be necessary. It will be the responsibility of the students to secure a data transfer tool, such as FileZilla, in order to access the data from VisiQuate.
2. **NDA:** Students will be required to sign Confidentiality and NDA agreements prior to access of the data and transfer of subject matter expertise.
3. **Key business and IT contacts:**

We recommend that the sponsor identify two main contacts to the student team: (i) business contact who understands the business domain of the project and can provide inputs on business related questions and decisions; (b) IT contact who can address data access related questions of the student team.

Contact persons named should review the project timetable in Exhibit-1 and make a commitment to be available to meet the deadlines.

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| **Business domain contact (please provide name and contact information)**  Sean Kirby. sean.kirby@visiquate.com. 469.500.2107  To streamline requests and lines of communication, Sean Kirby will be the sponsor and point person for all requests. |

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| **IT/Dataset support contact (please provide name and contact information)**  Sean Kirby. sean.kirby@visiquate.com. 469.500.2107 |

1. **Project delivery expectations: (i.e. format, location, visualization requirements, desired modeling tool, etc.)**

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| VisiQuate is open to innovative approaches to present the final project and will leave that to the project team. However, there are certain deliverables that are expected, including, but not limited to:   * List of assumptions * List of techniques and tools used to create the models * Information necessary to create engineering requirements of the final product (i.e., detailed instructions on how to re-create the work product) * Confidence levels around the findings |

1. **Expectations about the composition of student team:** please see Exhibit 2 for the student profile. If the proposed project has any particular background and skills requirements (e.g., business, engineering, math, humanities / US citizenship versus International, etc.), please list them here. While it may not be feasible to meet all requirements listed here, if there is room, we will try to accommodate the requirements in matching students to projects.

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| **Expectations about the composition of student team:**  A cross-functional team would be beneficial. Among the areas of concentration that would be helpful towards a successful product include:   * Consulting * Healthcare finance (specifically, revenue cycle) * Business analytics * Business intelligence * Predictive analytics |

**Exhibit 1. Capstone course tentative project timeline, milestones, and deliverables**

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| Projected Date | Content | Deliverable |
| 8/17 | Commitment to participate in the Capstone class—**This is not a definition of the project, merely an indication that you intend to submit a proposl.** | Client org to provide commitment to provide project, data, and support to students |
| 8/26 | Proposal for Capstone project | Client org to provide |
| 8/26—9/11 | Review proposal for content, size, scope, etc. | Faculty to review and prepare feedback |
| 9/11 | Feedback due to client org | Faculty to provide detail feedback on project proposal |
| 9/11—9/18 | Review and iteration on feedback and adjustments to project proposals. Establish student background requirements if necessary | Agreement on final project proposal between Faculty and client org |
| 10/5 | Project overview and expectations presented to class in order to develop preferences and select teams | Faculty to present, students to provide preferences |
| 10/9 | Students assigned to teams | Faculty to assign teams with student preferences as one criterion |
| 10/9—11/2 | Students and clients to meet and discuss:   * meeting schedules for the project duration * Sign and execute any necessary NDAs * resolve issues related to access to data | Student report on status of issues due 11/2 |
| 11/2—12/4 | Students and clients to meet and resolve:   * Obtain data sample to validate * Define problem environment * Discuss and begin to define business problem * Agree on feasibility of client project goals | Student report due on 12/4 with status of issues |
| 1/19 | First day of classes, full scale data analysis begins | Students begin full work on project |
| 1/29 | Project plan developed:   * Timeline * Resource identification * Statement of work * Literature review | Student submissions   * Presentation * Written report   Client feedback on report |
| 2/26 | First status update | Student submissions   * Presentation |
| 4/8 | Second status update | Student submissions   * Presentation * Written report   Client feedback on report |
| 5/2 | Final project submission | Student submissions   * Presentation * Written report   Client feedback on report |
| 5/11- 5/20 | Final executive presentation to client |  |