**DSBA/MBAD 6211: Group Project**

**Learning Objectives:**

* To create an opportunity for students to work on real-world business analytics problems.
* To emphasize critical thinking, application of various analytics techniques, team work, and presentation skills.

**Grading:**

* Novelty/creativity: originality of thought; surprising way of approaching the data
* Integration of multiple analytics techniques to gain meaningful insights into the data
* Integration of multiple data sets to yield new insights
* Clarity of the oral presentation

**Project Deliverables:**

* A flash drive that contains the following items:
  + Original data sets (only for groups that choose to work on their own data sets)
  + Data sources in addition to those provided by the professor, if any
  + A Word document
    - Project summary
    - Detailed analyses processes and steps
      * Enough details that allow others to replicate your results
    - Suggestions for additional data collection that might enhance future analyses
* Presentation slides
  + A 20 minutes oral presentation to highlight selected analytics techniques and major findings

**Project Choices:**

* Option 1: QVC Marketing-Can TV and Digital Jointly Increase Sales
* Option 2: QVC Fulfillment-Does Speed Matter in E-Commerce
* Option 3: Hire Heroes USA-Client Services
* Option 4: Hire Heroes USA-Development
* Option 5: Self-identified project
  + Subject to the professor’s approval
  + The dataset must
    - Be sizeable (# of records, # of variables)
    - Provide business/economic/social insights
  + Suggested websites: Kaggle competitions (<https://www.kaggle.com/competitions>)

**Suggested Timeline for Group Project**

**Week 1:** July 1st – Identify your group members and project topic

**Week 2**: July 8th – Be familiar with the business questions and explore the dataset

**Week 3**: July 15th – Data preprocessing

* Data cleaning, integration, and calculating all necessary variables

**Week 4**: July 22nd – Data preprocessing and initial analyses

* Descriptive statistics and analytics
* Exploratory visualization & visual analytics

**Week 5**: July 29th – Data analyses

* Model building and evaluation

**Week 6**: August 5th – Finalize project report and presentation

**Option 1 & 2: QVC**

QVC is a video and ecommerce retailer with a live broadcast that reaches nearly 300 million homes worldwide. QVC provides its customers with a variety of product offerings around the globe. The largest market for QVC is currently the US.

**Option 1: QVC Marketing - Can TV and Digital Jointly Increase Sales**

The data is a 3 month sampling of QVC data that comprises 20% of the actual volume (consider using a multiplier for better estimation). Please analyze QVC’s data to identify new markets that include campaigns, on-air personalities, on-air broadcast, and social networking. Their vision is to re-imagine the customer experience by merging shopping, entertainment, and social media. The company wants to gain insight into how these components drive product sales. Your analysis should address the following questions:

* What are the products and product categories that sell best in the US market?
* How effective are QVC’s email campaigns in driving product sales?
* How effective are QVC’s on-air broadcast and on-air personalities in driving product sales?
* What is the impact of QVC’s social networking presence on driving product sales?

Data:

* Customer master (customer number, customer state, customer zip, customer segmentation code, etc.)
* Product master (product number, product description, product category, product brand)
* Order master (order date, order time, customer number, product number, etc.)
* Product airtime (product number, date, time on, time off, hosts, etc.)
* Email campaign
* Social (source, interaction date and time, post, sentiment)

**Option 2: QVC Fulfillment-Does Speed Matter in E-Commerce**

In the US alone, QVC ships millions of packages each year to enrich its customers’ lives.  The future of fulfilling customer orders and meeting or exceeding their expectations is always at the forefront of QVC’s decisions.  One expectation is related to delivery speed.  Some retailers, primarily online retailers, focus primarily on quick turnaround on shipping goods to customers.  The faster the turnaround the more extensive the logistics/delivery network or the more costly it is.  QVC doesn’t just provide its customers with products, it prides itself on top notch customer service and a rich and rewarding overall experience.

Please analyze QVC’s customer geography, distribution network, and product mix, purchase patterns and help QVC to understand what the relationship between speed of product/package delivery and customer loyalty is. Your analysis should address one or more of the following questions:

* Does the current distribution network maximize customer penetration (spend)? If not, what should QVC do to increase customer penetration with the current distribution network?
* Are there specific products or product categories that should be located in specific distribution centers?
* Do customers that receive their product sooner purchase more than customers with longer delivery times?

Data:

* The large data set was broken into three excel spreadsheets (named QVC data 1, 2, 3) with less than 1 million row each. Please combine these spreadsheets and do your analyses.
* Distribution center data
* Order type data
* Data dictionary

**Option 3 & 4: Hire Heroes USA (HHUSA)**

Hire Heroes USA empowers U.S. military members, veterans, and spouses to succeed in the civilian workforce.  Through our free, signature workshops and online programs, clients are individually partnered with a highly trained Veteran Transition Specialist who works with the client to: create a tailored civilian resume that effectively highlights skills and achievements, translate military experience into civilian terminology, learn effective job searching, networking and interviewing techniques, and get connected with companies that actively hire veterans.  As a result, Hire Heroes USA confirms hired on average more than 60 clients per week.  Though this success has allowed growth in both scope and impact, there are still roughly 500,000 unemployed veterans that exist at any given time.  In order to better reach this population, Hire Heroes USA would like to analyze existing client, social media, and volunteer data to determine if there are opportunities for further improvements to our systems.

**Option 3: HHUSA-Client Services**

**Context:** All of our contact records have **Created Dates** signifying when they first entered into the Hire Heroes USA system, but all clients have a **Client Type**and **Client Category**. These individuals are also identified with the **Client**field. **Client Types** of *Online Registrant*, *Onward to Opportunity*, and *AVR*are considered part of our PaCT program. Nearly all of these clients registered through one of our registration portals. *AVRs*(Attempted Veteran Registrants) were not selected for assignment and were sent messaging encouraging them to register again. If selected, they then become *Online Registrants*. Thus, **Client Type** just denotes a current status. Current (and former) *AVRs*are identified by the **AVR**field.

Questions:

* Is there any relationship between the amount of time spent working with individual clients (time to complete an assessment, time to complete resume, # of logged activities, etc.) and how quickly they are employed?
* Is there a relationship between a client's demographic profile (rank, branch, time in service, spouse status etc.) and when that client registers for services?
* Is there a relationship between a client's demographic profile (rank, branch, time in service, spouse status etc.) and a client's likelihood to complete a survey?
* Is there a way to tell what communication method (call, texting or email) is more successful with clients, either based on their success in job placement or some other outcome?
* Is there anything in the client's demographic profile that indicates that a client is more likely to become a confirmed hire or any other outcome?

**Option 4: HHUSA-Marketing and Development**

**Context:**

Though all donations are updated in Salesforce, individual donations are done through a tool called Classy. Some donations are grouped as part of a campaign, while others are part of grants or corporate giving programs.

Email campaigns are completed by using a software tool called Vertical Response. The data from this is included (as VREmailHistory), and anything identified as Top Jobs or Virtual Career Fair in Targeted Email Subject should be helpful here.

Questions:

* Is there a geographic location within the US that most of our individual donors come from? Are there areas in the country we don't see any donors from? Do our social media posts or fundraisers calling for donations hit these areas with little to no donors?
* Do email campaigns have any effect on individual donations?
* Do email campaigns have any effect on job seekers creating profiles on the [Hire Heroes USA Job Board](https://jobs.hireheroesusa.org/)?
* Is there a relationship between certain days of the week, times in the day, or months, or time of year and when employers and job seekers create accounts?