

# Week 4 Capstone Notes

Wednesday, October 16, 2024 11:18 AM

My Presentation Slot:  
10/18/2024 @ 11:18AM



## PROJECT DETAILS & IMPLEMENTATION

Business Brainstorming Ideas:

- Cybersecurity Firm!
  - o What we do?
    - Provide cybersecurity consulting and troubleshooting services (through application) to enhance security measures/risk management on a wide scale
  - o Who are the Customers?
    - Other businesses/corporations IT departments who want to improve security
    - Possibly individual/personal support
  - o Who are the Suppliers?
    - Our developers who create the cybersecurity monitoring app
      - o IT personnel (technicians) who troubleshoot issues with the app/software
    - Our cybersecurity consultants that provide insight and expertise on maintaining good cybersecurity habits
    - Hardware vendors to supply devices to work on (laptops, monitors, peripherals, office equipment, etc.)
  - o What Market Area is Target?
    - Medical Institutions (Hospitals, Clinics, etc.)
  - o Database for Review
    - U.S. Department of Health and Human Services Office for Civil Rights (From 01/01/2014 - 10/16/2024)
    - [https://ocrportal.hhs.gov/ocr/breach/breach\\_report.jsf](https://ocrportal.hhs.gov/ocr/breach/breach_report.jsf)
      - o Selected all breaches and all locations of breaches options
        - ◆ Type of entity covered is Healthcare Providers (including Health Plan and Healthcare Clearing House)
          - o Pulled 853 records (needed to use Notepad ++ and plugin to create the table manually, couldn't figure out why all records were not importing)
        - ◆ Selected archive information as well about almost 6k rows
          - o Deleted information that was messing up table
            - ▶ ,('Sutherland Healthcare Solutions, Inc.','NJ','Business Associate','342197','05/22/2014','Theft','Email, Laptop','Yes','\')
            - ▶
  - o Database Analysis
    - Question 5:
      - o My data source has come through as one complete table, however I don't find it necessary to split the data into multiple tables, the table is already manageable with 9 attributes
        - ◆ 10/17/2024 - I actually think I should split into other tables, more specifically the breach type, it combines types which makes ne
      - o My source did not include multiple tables
      - o The dates covered are from 03/21/2022 - 10/08/2024 (it's supposed to cover a 24 month period of reported breaches currently under investigation by the office for civil rights)
        - ◆ It makes me want to go over additional data sources to see if I can put together a bigger picture including resolved investigations
          - o They have an archive set of data (5590 records), will download and analyze
            - ▶ From 10/21/2009 to 06/28/2024
            - ▶ Had to convert dates to YYYY/MM/DD by opening in Notepad ++ + CTRL+H >  
FIND (\d{2})/(\d{2})/(\d{4})  
REPLACE \3/1/2  
ENABLE REGULAR EXPRESSIONS
    - Question 6
      - o Notes
        - ◆ Noticing that **breach\_report** has not information under web\_description column, but many rows do in breach\_report\_archive (I believe this is because this field will more than likely not be completed unless a breach analysis has been completed/reached)
        - ◆ Added primary key to breach\_report\_archive using  
ALTER TABLE breach\_report\_archive  
ADD COLUMN '\_record\_number' INT AUTO\_INCREMENT PRIMARY KEY NOT NULL;
        - ◆ Noticing that Type of Breach has pretty much 6 choices, but my data shows that there are combinations of these choices which increases data brought back
          - o Possibly need to create an additional table that separates these values
        - ◆ Pulled data regarding how many people had data breached
          - o Archive: 452,454,149
          - o Current Data: 173,838,489
    - Business\_operations Drawio Diagram
      - o Operational Costs
        - ◆ Incident response planning and execution
        - ◆ Risk assessments and audits
        - ◆ Compliance audits and reporting
        - ◆ Cyber insurance premiums
        - ◆ Legal fees related to data breaches

- ◆ Public relations costs in case of a breach
- Technology Costs
  - ◆ Security software licenses (antivirus, firewalls, intrusion detection/prevention systems)
  - ◆ Network monitoring tools
  - ◆ Vulnerability scanning tools
  - ◆ Penetration testing services
  - ◆ Data encryption solutions
  - ◆ Two-factor authentication systems

#### Presentation Notes (From PPT):

- **1st Slide**
  - Cybersecurity has always been a huge part of my world (personal experience, news stories, educational aspirations)
    - Wanted a hyperfocus on healthcare/medical institutions (breaches happen far too often for the important data that should be safe-kept)
  - Customers = businesses within the healthcare industry (hospital/clinic IT executives)
  - Suppliers = ourselves
    - From software developers to create an app to monitor data
    - IT personnel to troubleshoot tech issues
    - Personnel to provide consultation services and support to enhance security measures/risk management
- **2nd Slide**
  - Fosters sound and sustained advances in the sciences of medicine, public health, and social services (**bullet 1**)
  - Reliable source that is required by the Secretary of HHS Breach of Unsecured Protected Health Information to compile (bullet 1)
    - Records are only included if breach affected 500+ individuals
  - Tables download as one complete table with 9 attributes (columns) (**bullet 2**)
  - Records
    - Archive = from 10/21/2009 to 06/28/2024 (**5590 records**)
    - Pending = 03/21/2022 to 06/28/2024 (last 24 months) (**853 records**)
- **3rd Slide**
  - HIPAA (Health Insurance Portability and Accountability Act)
    - Protects patients health info and gives certain rights over records
  - Health Plans
    - Health Insurance companies, HMOs, Company Health Plans, Government Programs (Medicare, Medicaid, Military/Veteran Healthcare Programs)
  - Healthcare Providers
    - Doctors, Clinics, Nursing Homes, Pharmacies, etc. (ONLY if they transmit information electronically in connection with HHS standard transactions)
  - Healthcare Clearinghouses
    - Entities who process nonstandard health information received from other entities (mediums/middlemen) (primarily between providers and insurance companies)
  - Business Associates
    - Key is that they are 3rd parties who deal must maintain HIPAA compliance but are NOT covered entities
- **4th Slide**
  - MySQL Workbench
    - Demonstrate at least 1 query that was used to produce results
      - ◆ Talk about 1 interesting thing learned about the data
    - Share structure of business\_operations database
      - ◆ Alongside entity relationship diagram
- **5th Slide**
  - 1st Bullet
    - Archive: 10/21/2009 – 06/28/2024
    - Current: 03/21/2022 – 10/08/2024
  - 2nd Bullet
    - Entities (Health Plans, Healthcare Providers, Healthcare Clearinghouses, Business Associates) (specific focus on Providers/Business Associates)
  - 3rd Bullet
    - Need more data to be conclusive, but possibly education opportunities, more monitoring