

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!
 - What we do?
 - Provide cybersecurity consulting and troubleshooting services (through application) to enhance security measures/risk management on a wide scale
 - Who are the Customers?
 - Other businesses/corporations IT departments who want to improve security
 - Possibly individual/personal support
 - Who are the Suppliers?
 - Our developers who create the cybersecurity monitoring app
 - 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.)
 - What Market Area is Target?
 - Medical Institutions (Hospitals, Clinics, etc.)
 - 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
 - Selected all breaches and all locations of breaches options
 - ◆ Type of entity covered is Healthcare Providers (*including Health Plan and Healthcare Clearing House*)

- ◇ 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
 - ◇ Deleted information that was messing up table
 - ▶ ,('Sutherland Healthcare Solutions, Inc.', 'NJ', 'Business Associate', 342197, '05/22/2014', 'Theft', 'Email, Laptop', 'Yes', '\')
 - ▶
- Database Analysis
 - Question 5:
 - 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
 - My source did not include multiple tables
 - 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
 - ◇ 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
 - 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
 - ◇ Possibly need to create an additional table that separates these values
 - ◆ Pulled data regarding how many people had data breached
 - ◇ Archive: 452,454,149
 - ◇ Current Data: 173,838,489
 - Business_operations Drawio Diagram
 - 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