Shafiur Chowdhury

Gabriel Lopes Carvalho

Ashwin Verma

CIS 4331 Final Project

Item #1

Database Name: Cloud-Solutions System

- **In the modern business environment, cloud services have become a crucial component of organizational success. As more businesses integrate cloud-based solutions, gaining insights into customer interactions with these services is paramount to staying competitive and driving growth. Our extensive and well-structured database is designed to provide a comprehensive understanding of various aspects, including customer accounts, cloud services, usage patterns, billing information, subscription plans, and infrastructure details.**

- **By effectively managing complex many-to-many relationships between Customers and Cloud Service Subscription, we can efficiently analyze customer behavior, identify emerging trends, and develop targeted strategies that cater to the evolving needs of our customer base. This data-driven approach not only enables businesses to offer personalized experiences that foster customer loyalty but also helps optimize resource allocation to ensure maximum return on investment.**

- **Furthermore, our cloud service provider database serves as a powerful tool that empowers businesses to make informed decisions, streamline operations, and identify opportunities for growth and innovation. By leveraging this valuable information, organizations can proactively address customer concerns, tailor subscription plans to meet specific requirements, and adapt to the dynamic market landscape. Some businesses can use this kind of service are: Cloud Service Providers, Small and Medium-sized Businesses, Government Agencies e.t.c.**

Team Number: 7

Item #2

Topic selected: Cloud Service Provider

Entities: customer accounts , cloud service, usage tracking, subscription

plan, infrastructure type info

Many to Many relationship: many Customers → many cloud services

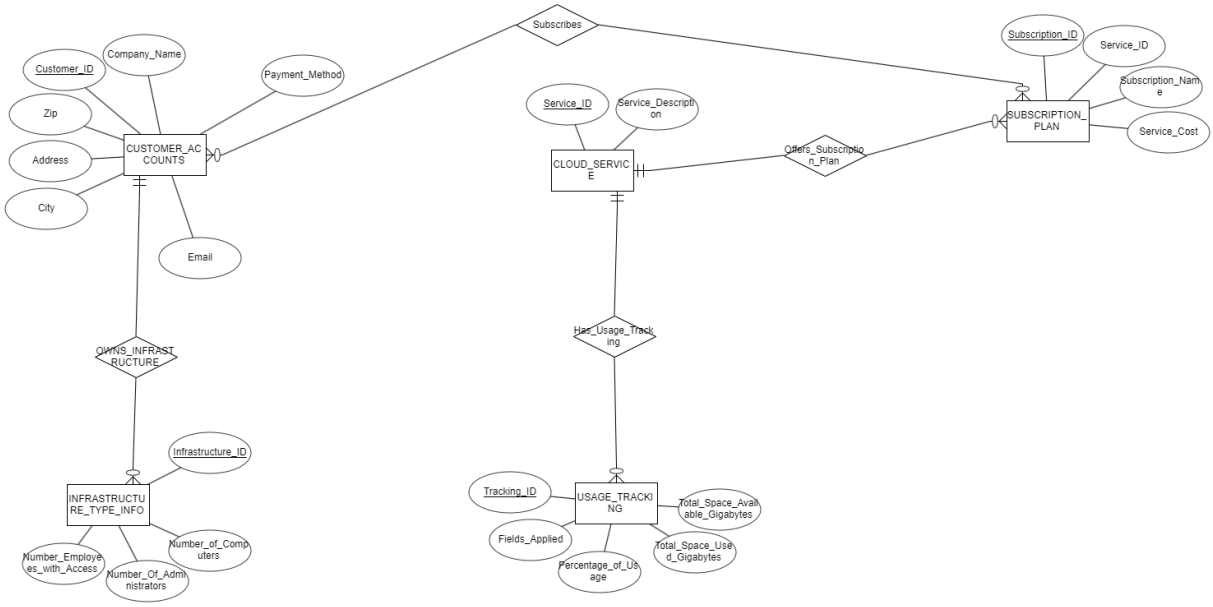
Wording Format Mentioned in Lecture: “For entities use singular nouns. For relationships use

verbs”.

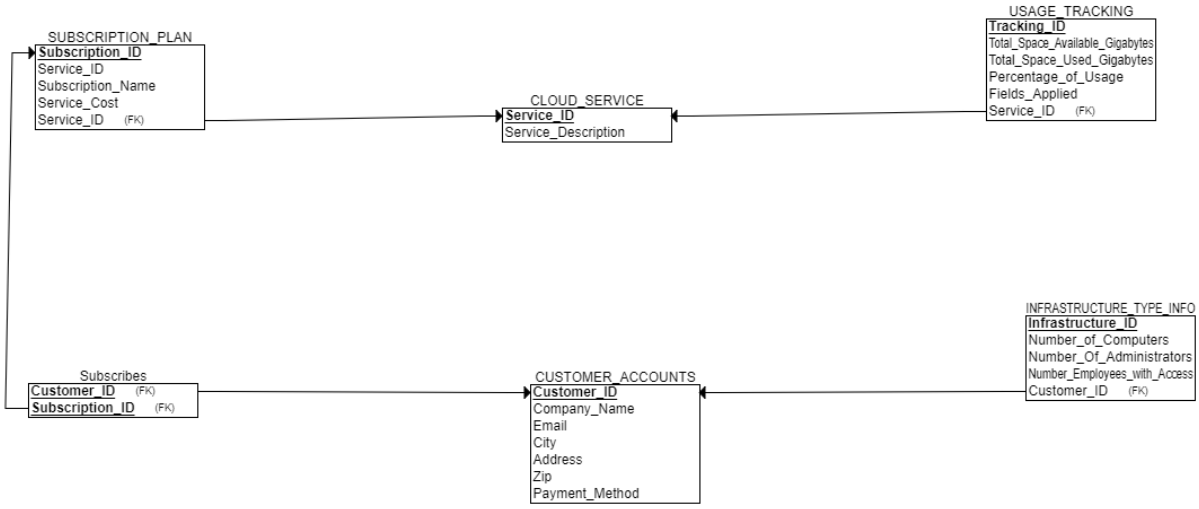
Entities: customer accounts , cloud service, usage tracking, billing information, subscription
plan, current state of the client’s infrastructure
Many to Many relationship: many Customers → many cloud services
... will capture data about the following:
● For each customer accounts: a customer ID(UNIQUE), customer name composed of first name
and customer last name, customer email address, customer city, customer address, customer zip
● For each cloud service: service ID(UNIQUE), service description
● For each usage tracking:total space available, total space used, percentage of usage, fields
applied
● For each billing information: billing ID(UNIQUE), Subscription ID,,customer name, email address,
payment method
● For each subscription plan: service ID(UNIQUE), service ID, subscription name, service cost

● For each customer’s infrastructure: Customer ID, number of computers, administrators, number
of employees with access,
● Each customer is supplied with many cloud services.
● Each usage tracking belongs to exactly one cloud service. Each cloud service has multiple
customers
● Each cloud services can have many customers
● Each customer can have many subscription plan

Item #3


Subscribes
Customer_ID
Company_Name
Payment_Method
Zip
Address
City
CUSTOMER_ACCOUNTS
Email
OWNS_INFRASTRUCTURE
Infrastructure_ID
INFRASTRUCTURE_TYPE_INFO
Number_Employees_with_Access
Number_Of_Administrators
Number_of_Computers
Service_ID
Service_Description
CLOUD_SERVICE
Offers_Subscription_Plan
Has_Usage_Tracking
Tracking_ID
USAGE_TRACKING
Fields_Applied
Percentage_of_Usage
Total_Space_Available_Gigabytes
Total_Space_Used_Gigabytes
Subscription_ID
Service_ID
Subscription_Name
SUBSCRIPTION_PLAN
Service_Cost

Item #4


SUBSCRIPTION_PLAN
Subscription_ID
Service_ID
Subscription_Name
Service_Cost
Service_ID (FK)
CLOUD_SERVICE
Service_ID
Service_Description
USAGE_TRACKING
Tracking_ID
Total_Space_Available_Gigabytes
Total_Space_Used_Gigabytes
Percentage_of_Usage
Fields_Applied
Service_ID (FK)
Subscribes
Customer_ID (FK)
Subscription_ID (FK)
CUSTOMER_ACCOUNTS
Customer_ID
Company_Name
Email
City
Address
Zip
Payment_Method
INFRASTRUCTURE_TYPE_INFO
Infrastructure_ID
Number_of_Computers
Number_Of_Administrators
Number_Employees_with_Access
Customer_ID (FK)

Item #5

Github Link of Code:
https://github.com/Ashwin835/Cloud-Solutions-System/blob/main/Final_Project.sql

Item #6

Description	Ashwin, Shafiur, Gabriel
ER Diagram	Shafiur, Gabriel
Relational Schema	Shafiur, Gabriel
SQL Implementation	Ashwin

Additional Items Changed From pervious description, diagram, and Schema

Change number_of_employees_with_access to number_employees_with_access(name too long to use in SQL)

Get rid of double foreign key in subscription_plan in the schema

Get rid of last_name in CUSTOMER ACCOUNTS and change first_name to be just 'company_name'.

Add 'gigabytes' to the end of total space used/available attributes in USAGE TRACKING