MIS: Special topics

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Hello x Day 3

你好

Day 2 Review

1. How is a business rule structured?
2. What does elicitation mean?
3. What is the most effective elicitation technique?
4. What are Saffer's 3 rules for gathering requirements?
5. What is a swimlane diagram?
6. What is the symbol for data?

IT Controls

- They are specific activities performed by a person or system that have been designed to prevent or detect the occurrence of a risk that could threaten your information technology infrastructure and supported business applications.
- IT controls are generally grouped into two broad categories:
  - • General controls commonly include controls over data center operations, system software acquisition and maintenance, logical security, and application system development and maintenance.
  - • Application controls such as computer matching and edit checks are programmed steps within application software; they are designed to help ensure the completeness and accuracy of transaction processing, authorization, and validity.

Management's use of controls

- Controls are put in place to ensure that the Processes, Standards and Guidelines are being followed.
- Therefore, they help mitigate the **risk** that undesired outcomes will occur. These risks are call the control objectives
- Types of controls:
  - Preventative: tries to avoid a risk or lessen its impact
  - Detective: discovers that a risk has occurred and needs to be addressed
  - Corrective: takes action to eliminate the problem and restore the environment

  - Controls are usually used in combination. This is called layered controls or **defense in depth.**

COSO Framework

- Control framework:
  1. Risk Assessment
  2. Control Activities
  3. Information & Communication
  4. Control Environment
  5. Monitoring Activities

Risk Assessment

All organizations have risks and are exposed to factors that cause them not to reach their objectives. Risk assessments are performed to evaluate internal and external factors. Assessments provide reasonable assurance that organizations are managing risks to an acceptable tolerance.

How do we manage risk?

- Identify risks
- Assess & Prioritize
- Develop a plan
- Monitor

What type of risks exist?

- **Internal risks:**
  - Inherent to the inside of the business or the organization
  - Examples include:
    - Employee error
    - Mismanagement
    - Dishonesty

- **External risks:**
- Outside of the business or organization; less control to avoid the risk
- Examples include:
- Economic uncertainties
- Industry information
- Competitors

What can we do about risk?

Assess & prioritize

- You can identify each risk
- You should give a unique identifier to each risk in your log
- And determine if the risks' **likelihood to occur** and the **impact of the risk**

	Low Impact	High Impact
Low Likelihood	Monitor the risk	Monitor the risk
High Likelihood	Mitigate the risk	Take immediate action

You can also develop a risk management strategy

- There are four strategic responses to a risk that is identified:
  1. **Avoid:** remove all access to the risk
  2. **Reduce:** Minimize the likelihood of impact
  3. **Transfer:** Shift the risk elsewhere
  4. **Accept:** Live with low-impact, low-likelihood risks

Risk Management strategy

Strategy	Example
Avoid	If an area is prone to bad weather, do not build your house there.
Reduce	If you have a busy season at work, be sure to train staff. If a staff member is sick, work is not interrupted.
Transfer	Buy insurance or outsource the task to an expert.
Accept	Understand something may happen and live with it

How do we track risk?

- A **risk register**
  - A tool used to document and track all identified risks in a project or organization. It is a centralized log.
  - A risk register to includes information to help the team understand:

Column	Description
Risk ID	The unique identifier specific to the risk
Description	What the risk is
Category of risk	Type of risk
Likelihood	How likely it is to happen
Impact	The impact of the risk if it did happen
Owner	Who is responsible for managing the risk
Date Identified	When was the risk made aware
Status	Is it an ongoing risk?

Example of a risk register

This is a flood-prone company that a new team is being hired.

Risk ID	Description	Category	Likelihood	Impact	Owner	Mitigation
R001	Flood damage to office and equipment	Environmental	High	High	Facilities	Install flood barrier and elevate all expensive equipment
R002	Business disruption due to road closures	Operational	High	Medium	Operations	Enable remote work capabilities to not disrupt the business
R003	Data loss due to flood-related power outages	IT/Cyber	Medium	High	IT Manager	Daily cloud back ups
R004	Delays in hiring due to limited access	HR	Medium	Medium	Hiring Manager	Look at different ways to higher people; ask management to help expedite
R005	New hires lacking necessary training or onboarding	HR/Operational	High	Medium	Manager	Develop onboarding plan and team activities
R006	Team cohesion due to virtual onboarding	HR	Medium	Medium	Team lead	Weekly virtual meetings
R007	Reputation damage due to flooding	Strategic	Low	High	CEO/PR manager	Communication to clients

Group Work- 20 minutes

- **Business overview:**
- “Steep & Sweet” is a boutique café located in a busy downtown district. The shop is known for artisanal teas and freshly baked gourmet cookies. It attracts office workers, students, and tourists. The café offers dine-in, take-out, and an online ordering service.
- The owner, Lila, has recently expanded the menu and hired a few new staff members. While business is growing, the café faces several challenges that could affect operations and customer satisfaction.

- **Factors to consider:**

1. The café is located in an older building with a history of plumbing issues.
2. A nearby competitor just launched a similar menu with lower prices.
3. There is only one trained baker on staff.
4. The business relies on a local supplier for both tea and ingredients.
5. Online ordering is new and managed by one part-time employee.
6. The area is prone to power outages during storms.
7. Recent online reviews mention long wait times and occasional incorrect
8. The café is not available on any delivery platforms.

We talked yesterday about mapping the process.

Remember swimlane diagrams?

Let’s go one step deeper.

How do we consider the data in the process?

- Entity Relationship Diagram
  - A visual representation of the different data points to describe how the data is related to eachother in the process.

ERD Components

- There are a few different ways to document the relationships in an ERD.
  - **Entity-** a noun; a person/place/thing you want to store data about
  - **Attribute-** a description of the entity
  - **Relationship-** how the entities are connected

- The credit card that paid for the transaction has my name, the credit card number, the expiry date, and is a visa card.

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Let's draw that out

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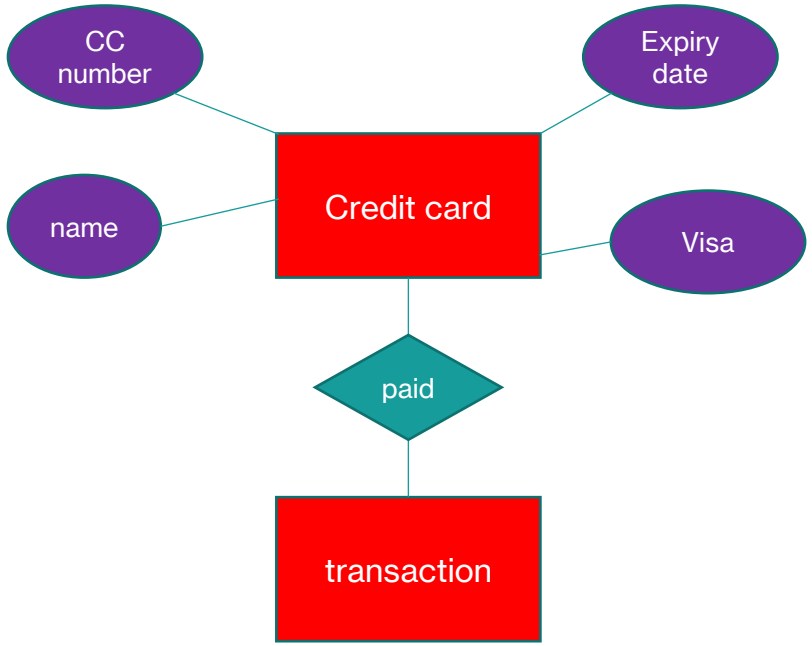


Chen's Notation

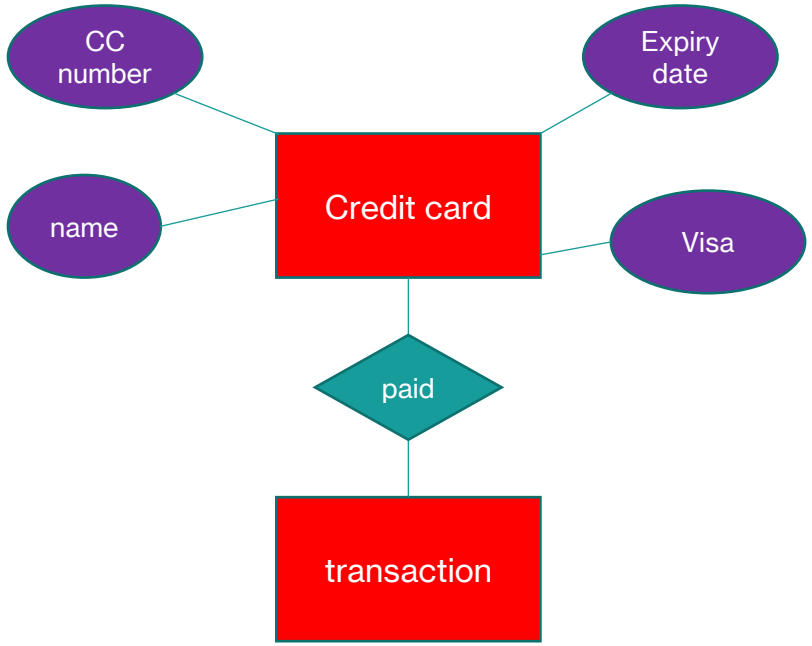
Credit card	paid	Transaction
CC number		??
Name		??
Expiry Date		??
Visa		??

ERD Tables*

common in business

What are the attributes of the transaction?

- The **credit card** that **paid** for the transaction has **my name, the credit card number, the expiry date, and is a visa card.**



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ERD Tables*

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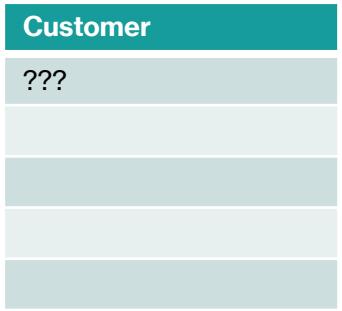
Let’s work through an example

- **Charlie’s Paw Store** is a locally owned pet shop that sells a variety of pets, pet food, toys, and supplies. The store also offers basic services like **pet grooming** and **boarding**.
- The owner wants to digitize the shop's operations and build a simple database system to track:
  - Pets in inventory
  - Customer purchases
  - Grooming appointments
  - Employee assignments
  - Supplier information for pet products
- The system should also store details about pet types (dogs, cats, birds, etc.), and track which products are bought most often.
- Spend 20 minutes drawing out the data tables.

Charlie’s Paw Store-ERD (to start)



Charlie’s Paw Store-ERD

Customer
Customer ID
First Name
Last Name
Phone
Email

Pet
PetID
Name
Type of Pet
Breed
Age
Price

Product
ProductID
Name
Category
Price
Stock
SupplierID

Purchase
PurchaseID
CustomerID
ProductID
Quantity
PurchaseDate

Supplier
SupplierID
Name
ContactID
Address

Appointment
AppointmentID
Date
Time
ServiceType
CustomerID
PetID

Employee
EmployeeID
FirstName
LastName
Role

Data Modeling + Cardinality

- **Cardinality:** the number of relationships between a database and another database. It shows how many instances of an entity can be related to other entities.
  - **One-to-one (1:1):** Each person has one passport.
  - **One-to-many (1:M):** One person can drink many drinks throughout the day.
  - **Many-to-many(M:M):** A student can have many courses and a course can have many students.

Drawing cardinality

- 1:1 = a one to one relationship
- 1:m = a one to many relationship
- m:m = a many to many relationship

What does below mean?