Systems Analysis and Design

Systems Design

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Kiến thức - Kỹ năng - Sáng tạo - Hội nhập

Sứ mệnh - Tầm nhìn

Triết lý Giáo dục - Giá trị cốt lõi

Outline I

Systems Design

The goal of systems design is to build a system that is effective, reliable, and maintainable:

- **Effective** Supports business requirements and meets user needs.
- **Reliable** Handles input errors, processing errors, hardware failures, or human mistakes.
- **Maintainable** Flexible, scalable, and easily modified.

User Interface Design

1. Designing output to serve the intended purpose.
2. Designing output to fit the user.
3. Delivering the appropriate quantity of output.
4. Making sure the output is where it is needed.
5. Providing the output on time.
6. Choosing the right output method.

User Interface (UI)

- Describes how users interact with a computer system and consists of all:
  - Hardware.
  - Software.
  - Screens.
  - Menus.
  - Functions.
  - Output.
  - Two-way communications between User and Computer.
- Support:
  - Business functions.
  - System effectiveness.
- **Graphical User Interface (GUI)** Graphics with mouse cursor, buttons, toolbar, icons, menus, scrollbars, ...

Human-Computer Interaction

User Interface is based on basic principles of human-computer interaction (HCI).

HCI:

- Describes the relationship between computers.
- Including all communications and instructions necessary
  - Enter input to the system
  - Output in the form of screen displays or printed reports

Interface Designers Habits

1. Understand the Business.
2. Maximize Graphical Effectiveness.
3. Think like a User.
4. Use Models and Prototypes.
5. Focus on Usability.
6. Invite Feedback.
7. Document Everything.

UI Design Guidelines

1. Create an Interface That Is Easy to Learn and Use.
2. Enhance User Productivity.
3. Provide Flexibility.
4. Provide Users with Help and Feedback.
5. Create an Attractive Layout and Design.
6. Enhance the Interface.
7. Focus on Data Entry Screens.
8. Use Validation Rules.
9. Manage Data Effectively.
10. Reduce Input Volume.

Printed Output

Before designing printed output, there are several questions to consider:

- Why must printed output for view or save, rather than screen-based information?
- Who wants the information?
- What specific information will be included?
- Will the printed output be designed for a specific device?
- When and how will the information be delivered, and how often must it be updated?
- Do security or confidentiality issues exist? How will they be managed?

Report Design

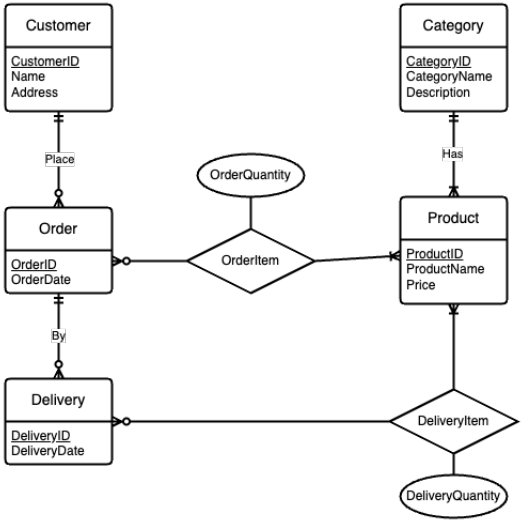
- Report header and footer.
- Page header and footer.
- Types of Reports:
  - Detail report.
  - Exception report.
  - Summary report.

Database Design

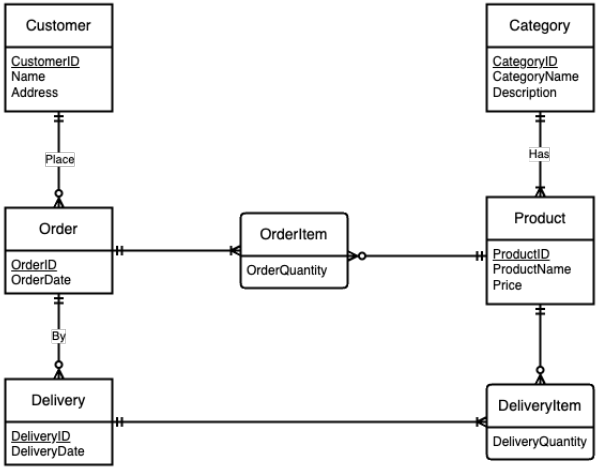
Review on Database Design course:

- Conceptual Data Design.
- Logical Data Design.
- Physical Data Design.

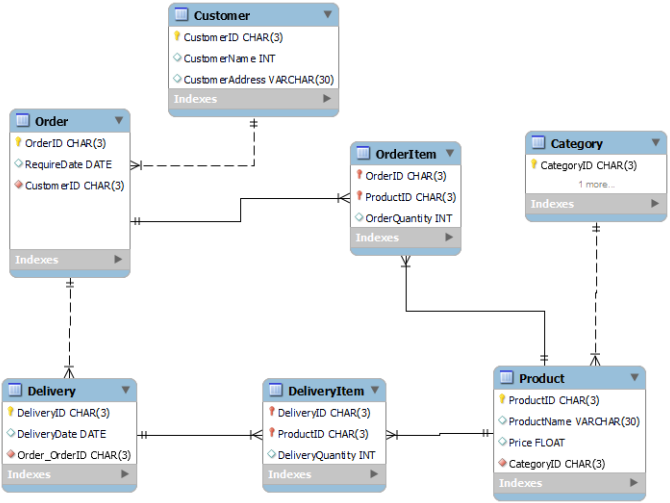
Conceptual Data Design (ERD by Draw.io)



Conceptual Data Design (ERD by Draw.io)



ERD by MySQL WorkBench



Logical Data Design

Category(CategoryID, CategoryName, Description)

Product(ProductID, ProductName, Price, *CategoryID*)

Customer(CustomerID, Name, Address)

Order(OrderID, OrderDate, *CustomerID*)

OrderItem(*OrderID*, *ProductID*, OrderQuantity)

Delivery(DeliveryID, DeliveryDate, *OrderID*)

DeliveryItem(*DeliveryID*, *ProductID*, DeliveryQuantity)