

# DATABASE DESIGN PROCESS

# HOW DOES IT GET STARTED?

START  
HERE

# UNNAMED SYSTEMS

*This is our business..*

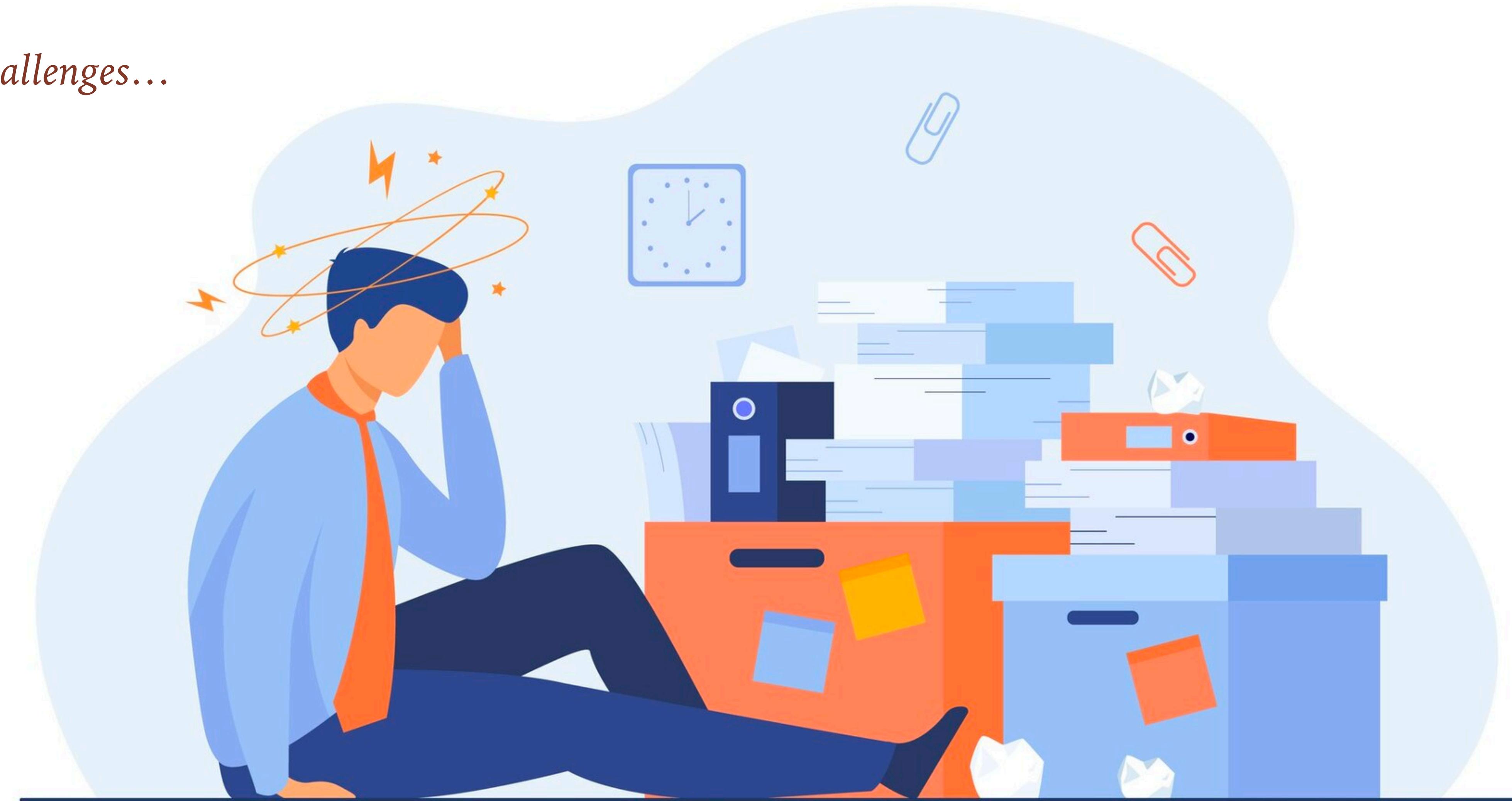


# UNNAMED SYSTEMS

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*This is our business..*

*And these are our challenges...*



# UNNAMED SYSTEMS

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*This is our business..*

*And these are our challenges...*

*How can so called automation can rescue us?*



# NAMED SYSTEMS

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*We need a ...*

Point Of Sales

E-Commerce Platform

Inventory Tracking

Accounting Software

HR and Payroll

# NAMED SYSTEMS WITH CUSTOMIZATIONS

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We need a ...

Point Of Sales

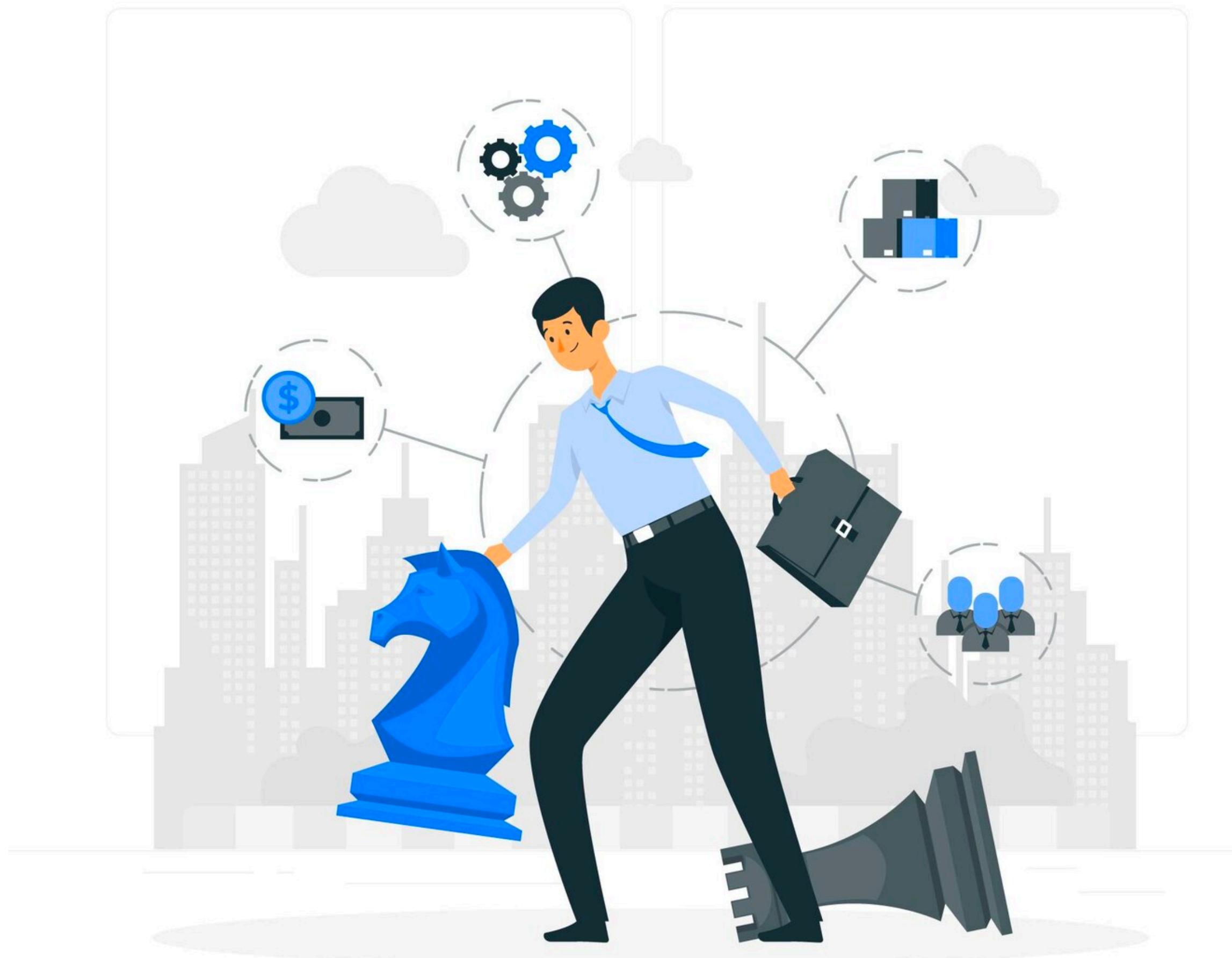
E-Commerce Platform

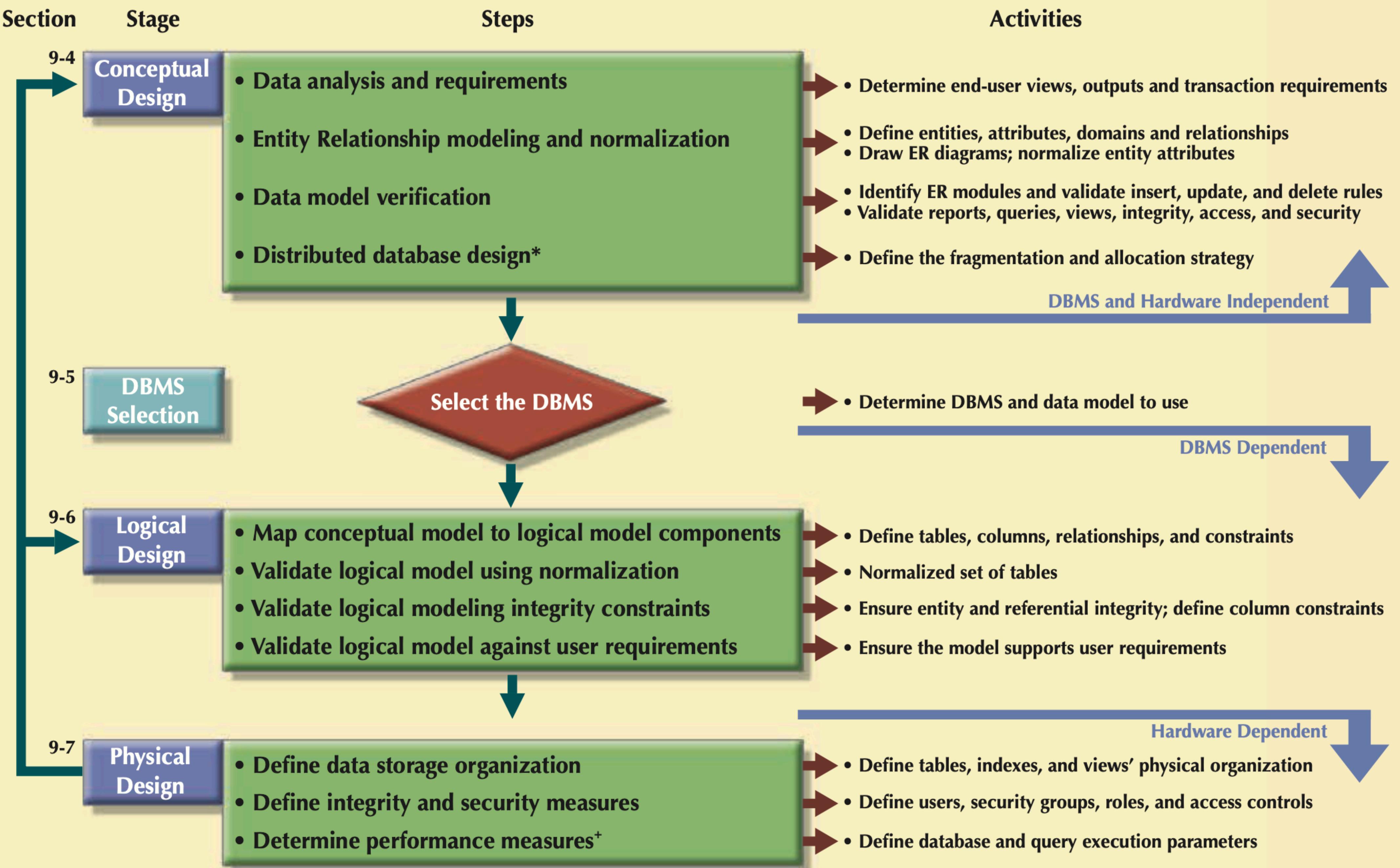
Inventory Tracking

Accounting Software

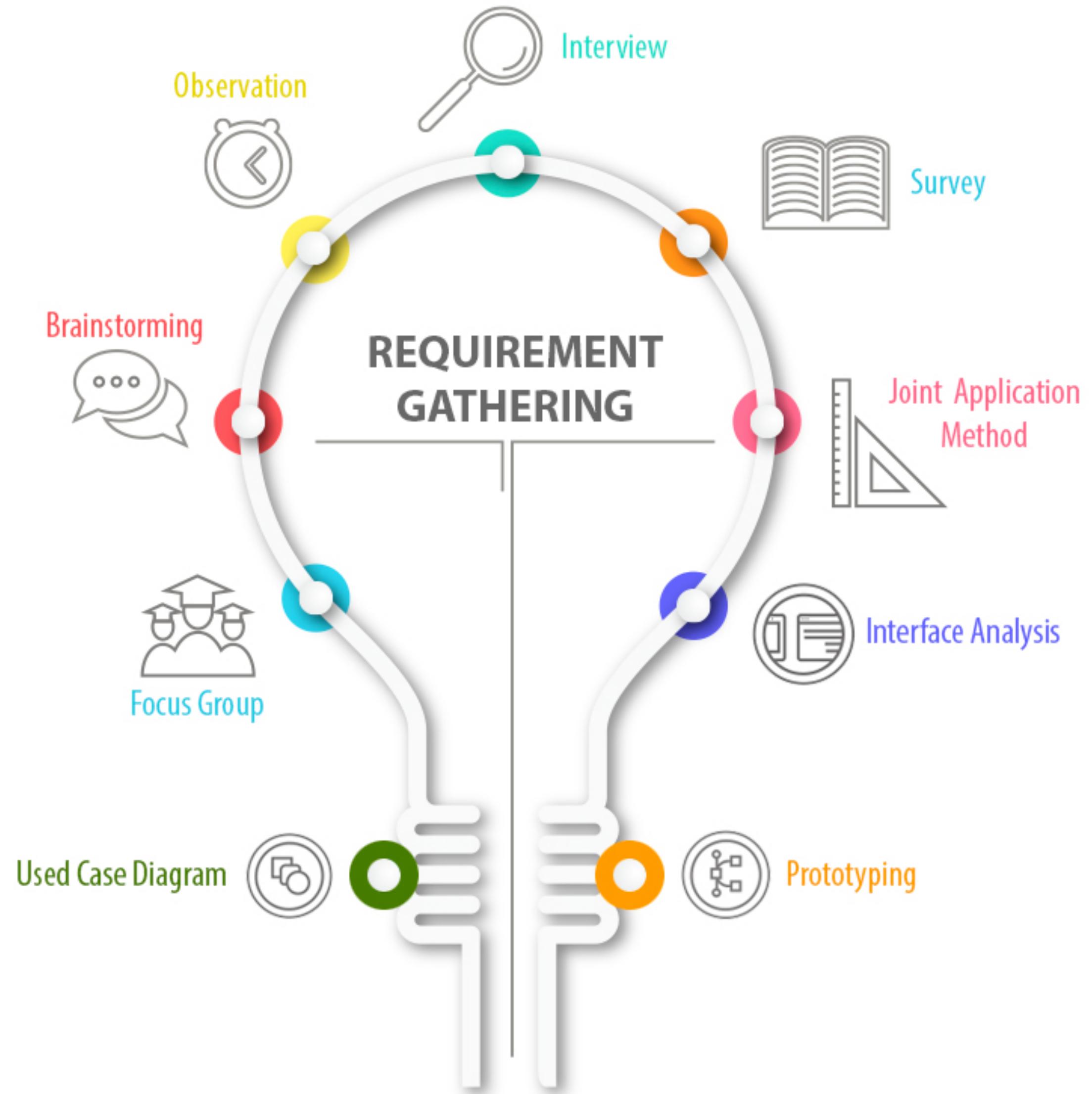
HR and Payroll

BUT WE HAVE SOME **SPECIAL REQUIREMENTS**





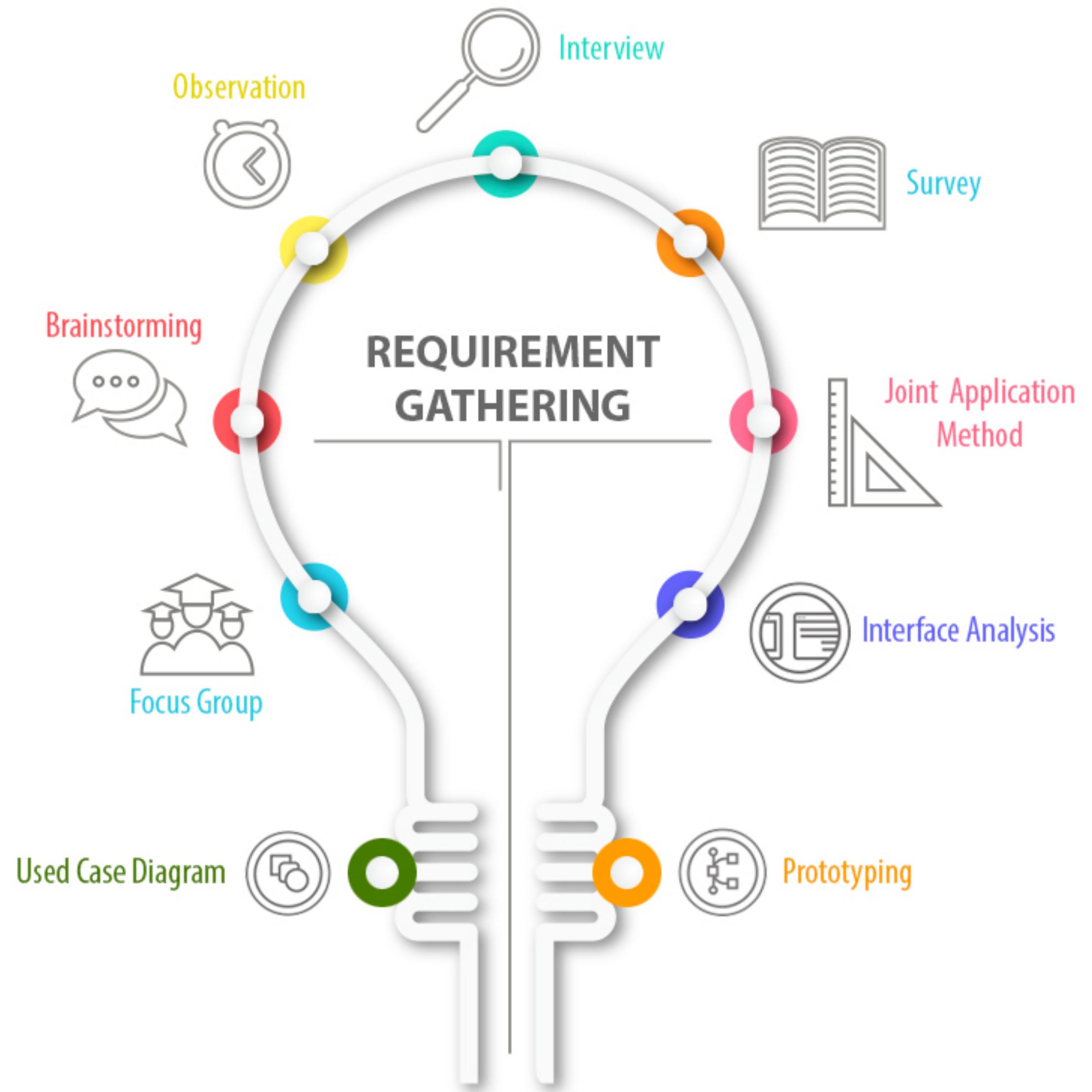
# 1. REQUIREMENT COLLECTION & ANALYSIS



*Discover INFORMATION  
that is required to manage  
in order to run the OPERATIONS  
with maintaining policies and regulations.*

# 1. REQUIREMENT COLLECTION & ANALYSIS

- Site Visit / In-depth interview



# 1. REQUIREMENT COLLECTION & ANALYSIS

## Study Processes and Practices

- Forms
- Reports
- Registers
- Receipts / Challans / Memo
- Bills / Invoices
- Acknowledgements / GRN
- Books / Printed Copy / Excel
- Anything that is used to maintain the business process

STOCK REGISTER								
Date		জমা ঘর B. F.		জমা ঘর RECEIPTS		খরচের ঘর ISSUE		
তারিখ	পূর্বের জমা	জমা	ক্যাশ মেমো	মোট	ক্যাশ মেমো	বিক্রয়ের	অবশিষ্ট	মন্তব্য
8.5.21	4111	1439	343412	1439	—	—	1439	
17.6.21	1439	—	—	1439	1446640	750	739	Kapai
20.6.21	739	—	—	739	1446577	100	639	Lectu
6.6.21	639	—	—	639	—	12	627	P.O.
30.6.21	627	—	—	627	—	60	567	SK
	567	—	—	567	—	66	501	SS
30.7.21	501	—	—	501	—	15	486	US \$1
12.8.21	486	—	—	486	—	20	466	US \$1
05.9.21	466	4400	7060710	4866	—	—	4866	
06.9.21	4866	—	—	4866	1446597	1000	3866	Screem
06.9.21	3866	—	—	3866	1446598	600	3266	(caliper)
06.9.21	3266	—	—	3266	1446599	1000	2266	Lapiz
8.9.21	3266	—	—	2266	1446600	500	1726	Kalikoi
12.9.21	1726	—	—	1726	Top schut	650	1166	SADM
01.10.21								
19.01.22								
20.01.22								

## WEEKLY SALES ACTIVITY

DAYS	IN SALES OFFICE	OUTSIDE OFFICE	IN OFFICE VISITS	OUTSIDE CALLS	FILE PHONE CALLS	NEW ACCT. PHONE	GUEST ROOMS	FOOD & BEVERAGE	MTG. ROOM RENTAL	OTHER*	TOTAL
	\$14.00	\$23.00	\$4.00	\$45.00	\$22.00	\$2.00	\$100.00	\$0.00	\$0.00	\$0.00	\$0.00
Monday	\$14.00	\$23.00	\$4.00	\$45.00	\$22.00	\$2.00	\$100.00	\$0.00	\$0.00	\$0.00	\$0.00
Tuesday	\$23.00	\$76.00	\$10.00	\$50.00	\$54.00	\$45.00	\$80.00	\$0.00	\$0.00	\$0.00	\$0.00
Wednesday	\$4.00	\$130.00	\$11.00	\$33.00	\$67.00	\$65.00	\$400.00	\$0.00	\$0.00	\$0.00	\$0.00
Thursday	\$102.00	\$40.00	\$18.00	\$0.00	\$86.00	\$82.00	\$97.00	\$0.00	\$0.00	\$0.00	\$0.00
Friday	\$33.00	\$55.00	\$22.00	\$49.00	\$143.00	\$26.00	\$50.00	\$0.00	\$0.00	\$0.00	\$0.00
Saturday	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Sunday	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>Totals</b>	<b>\$176.00</b>	<b>\$324.00</b>	<b>\$65.00</b>	<b>\$177.00</b>	<b>\$372.00</b>	<b>\$220.00</b>	<b>\$727.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>

GOAL	\$200.00	\$400.00	\$300.00	\$65.00	\$500.00	\$300.00	\$400.00	\$600.00	\$300.00	\$300.00	\$300.00
VARIANCE	-\$24.00	-\$76.00	-\$235.00	\$112.00	-\$128.00	-\$80.00	\$327.00	-\$600.00	-\$300.00	-\$300.00	-\$300.00

East Repair Inc.

1912 Harvest Lane  
New York, NY 12210

RECEIPT

Bill To  
John Smith  
2 Court Square  
New York, NY 12210

Ship To  
John Smith  
3787 Pineview Drive  
Cambridge, MA 12210

Receipt # US-001  
Receipt Date 11/02/2019  
P.O.# 2312/2019  
Due Date 26/02/2019

QTY	DESCRIPTION	UNIT PRICE	AMOUNT
1	Front and rear brake cables	100.00	100.00
2	New set of pedal arms	15.00	30.00
3	Labor 3hrs	5.00	15.00
		Subtotal	145.00
		Sales Tax 6.25%	9.06
		<b>TOTAL</b>	<b>\$154.06</b>

John Smith

SALESPERSON Name

WEEK ENDING

LOCATION Location

TODAY'S DATE

# 1. REQUIREMENT COLLECTION & ANALYSIS

## Persona\* Interview

Persona = an archetype of a user that helps designers and developers empathize by understanding their users' business and personal contexts

User Persona Template	
<b>User Intro</b>	
<b>Personal Details</b>	
Name: Mr./Mrs.	Office:
Age: 51	
Education: BA	Related to Current Position
Other Certifications: Management course.	Role: Senior Officer.
Status: Single / Married; Kids: 36,	Department:
Location: Board bazar.	Supervisor:
	Number of subordinates: 3.
	Other Details:
	Distance from residence: 5KM. Public Transport 30 mins.
<b>Overview</b>	
Bio Dist. Chiplun.   8:30 - 5:30 PM - Office.	
In Dhaka 35 yrs   100% Job satisfaction	
35.7 yrs.	
<b>Equipment and Tools</b>	
Mobile 1: Model: Samsung A20	; Personal / Office? Internet: No / SIM / WiFi?
Mobile 2: Model:	; Personal / Office? Internet: No / SIM / WiFi?
Computer: Model: Desktop.	
Laptop/Desktop? Webcam? Sound system? Internet connection?	Single / Shared?
Attendance Card: Yes / No;	
Printer: Yes / No; Single / Shared?	
Other Device: Land phone.	

### Responsibilities and Activities

#### Registers and Records

Name	Purpose	Comment
- Workorder file.	WO. check.	
- Receiving file	Receiving info. check.	
- Issue file.	Collecting chittran.	
- Allocation file.	Requisition paper.	
Monthly Report file.		

#### Responsibilities

- Receiving, issue, + check, billing.
- Staff, Transport's bill checking.
- 

#### Pain points

- Item Name, Item specification.
- No project Name in WO.
- 

#### Expectation from a new System

- Print with signature, position and Name (issuer).
- Item code with name.
- Allocation file in system.

#### Impressive things about the current System

\*Impression levels = good / blessing / irreplaceable

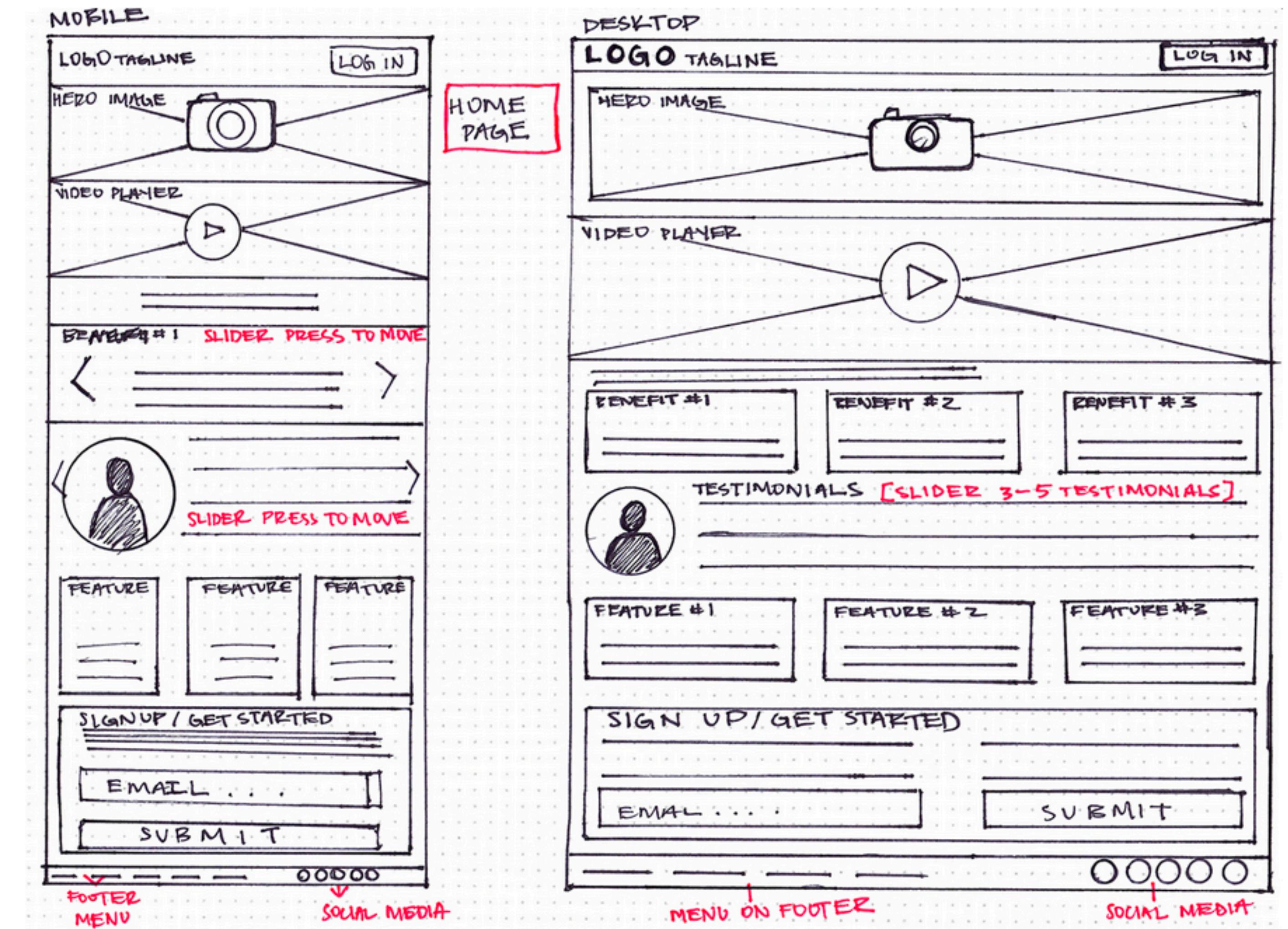
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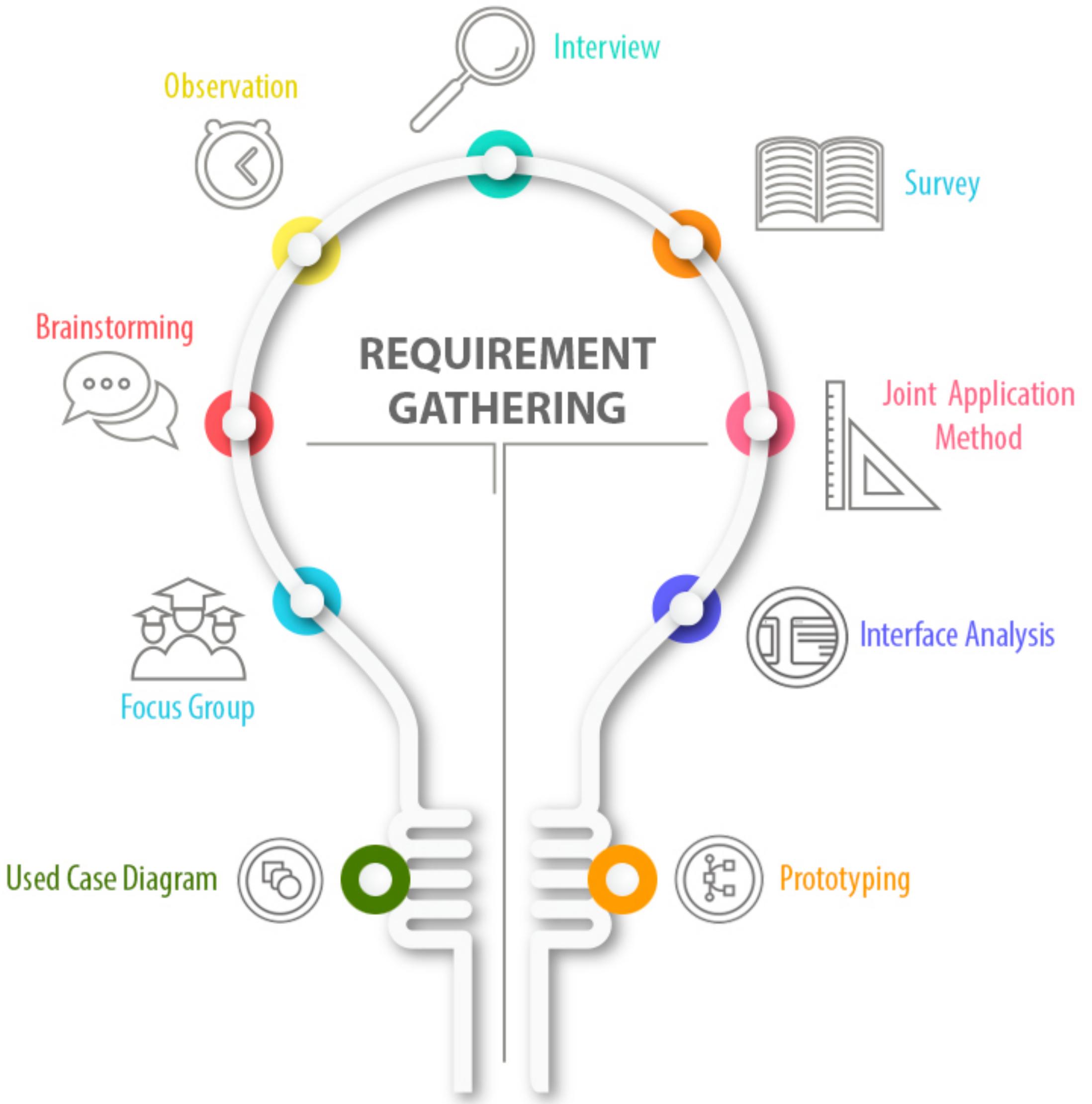
What      Use by      frequency      Impression

# 1. REQUIREMENT COLLECTION & ANALYSIS

## Prepare Wireframe

- Interactive
  - Simulate user activities
- Low-fi
  - Easy to change
  - Avoid irrelevant feedback
- Focus on process (not the design)

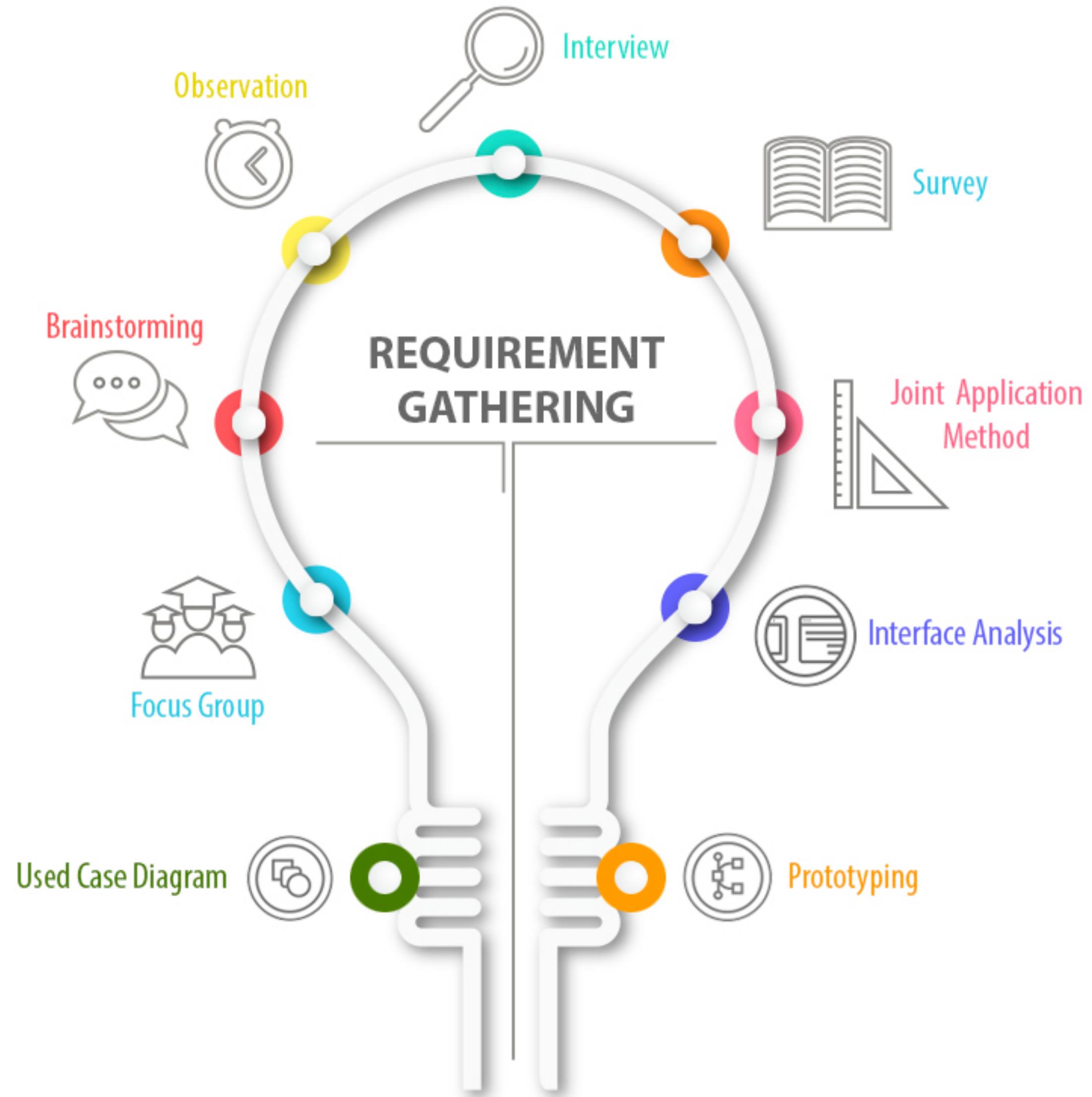




# 1. REQUIREMENT COLLECTION & ANALYSIS

- Site Visit / In-depth interview
- Study current Processes and Practices
- Persona identification and interview
- Study Documents, Forms, Reports...
- Prepare Wireframe
- Intensive demonstration and feedback cycles

# 1. REQUIREMENT COLLECTION & ANALYSIS

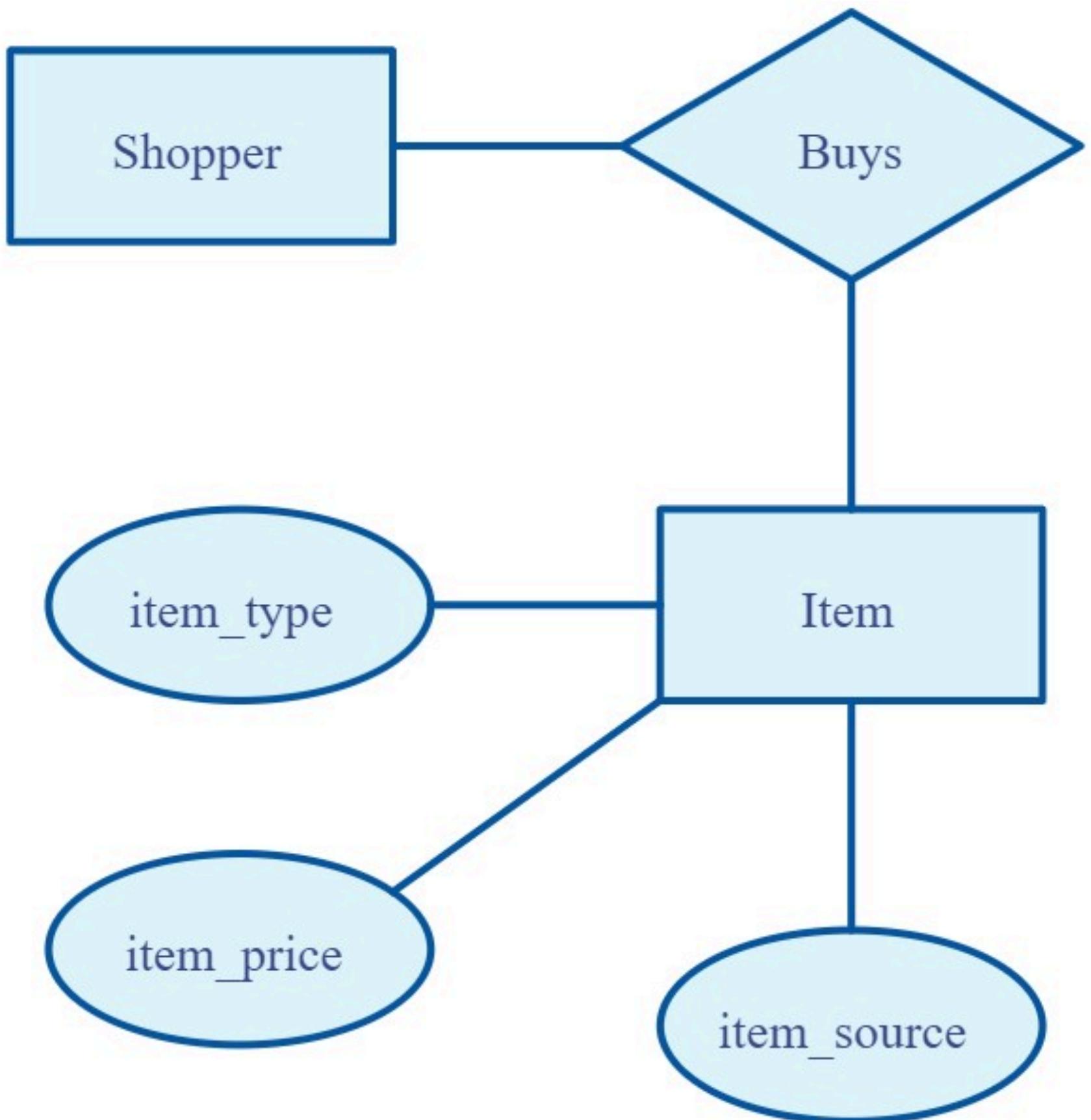


## *Outcome:*

- What data must be available?
- How are data elements to be related?
- How these information (and their modifications) will satisfy the business operations end-to-end.

## 2. CONCEPTUAL DATA MODEL

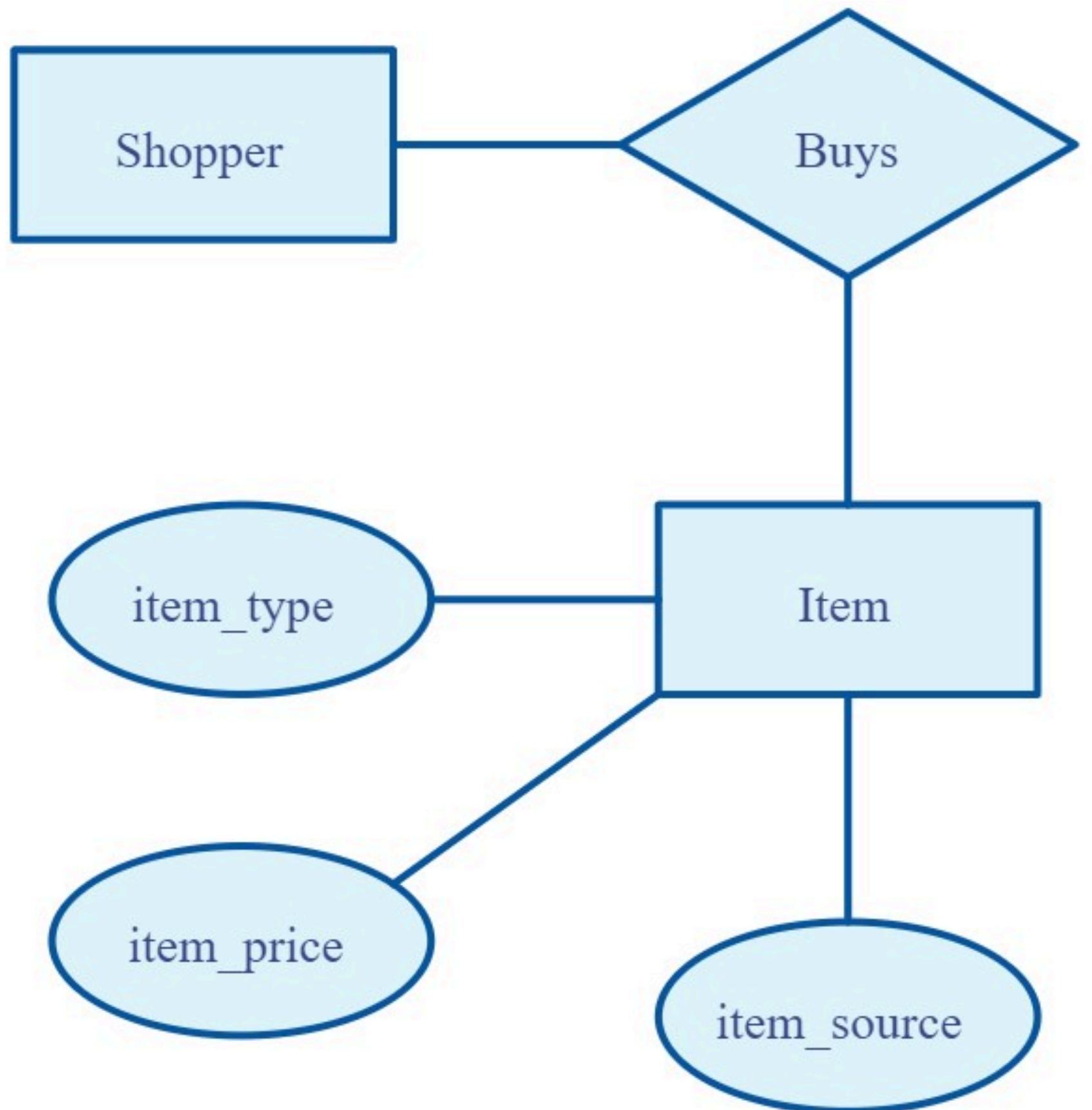
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- Define the Entities
- Identify their attributes
- Define the relationships between Entities
- Visualize the user activities with your data model and identify the gaps
- Repeat (*until no gap is identified*)

## 2. CONCEPTUAL DATA MODEL

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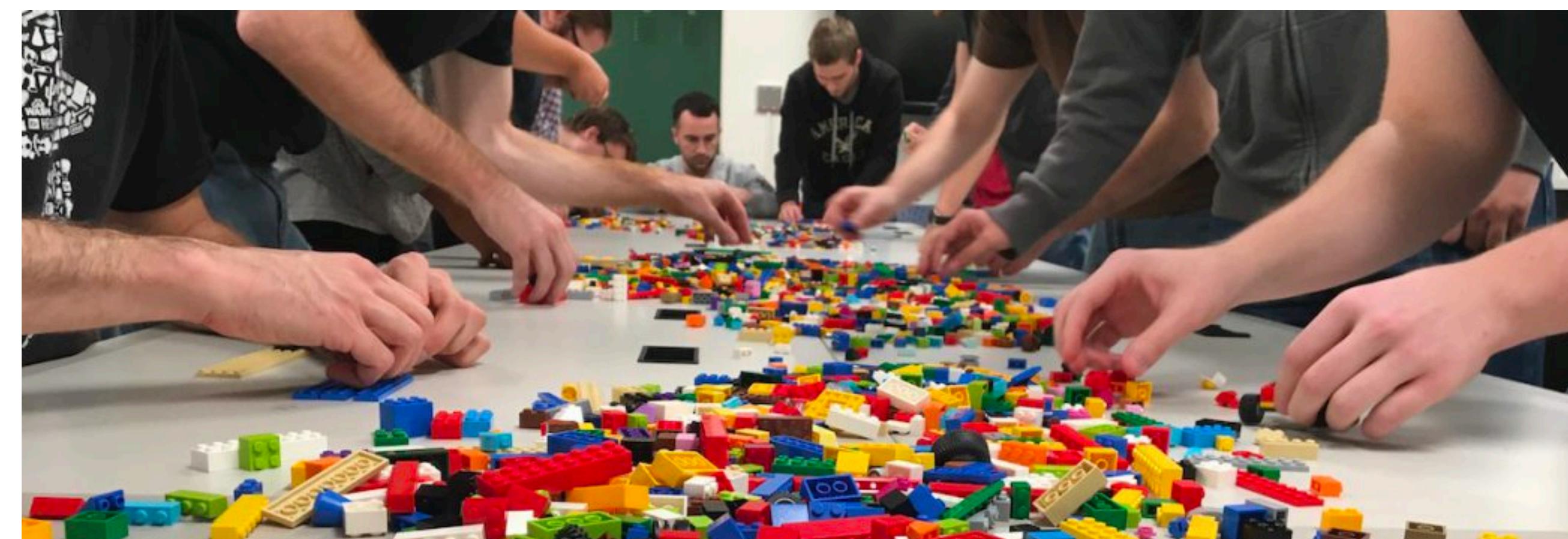


*Outcome:*

- Data and Operational requirements captured
- Visual representation of data requirements

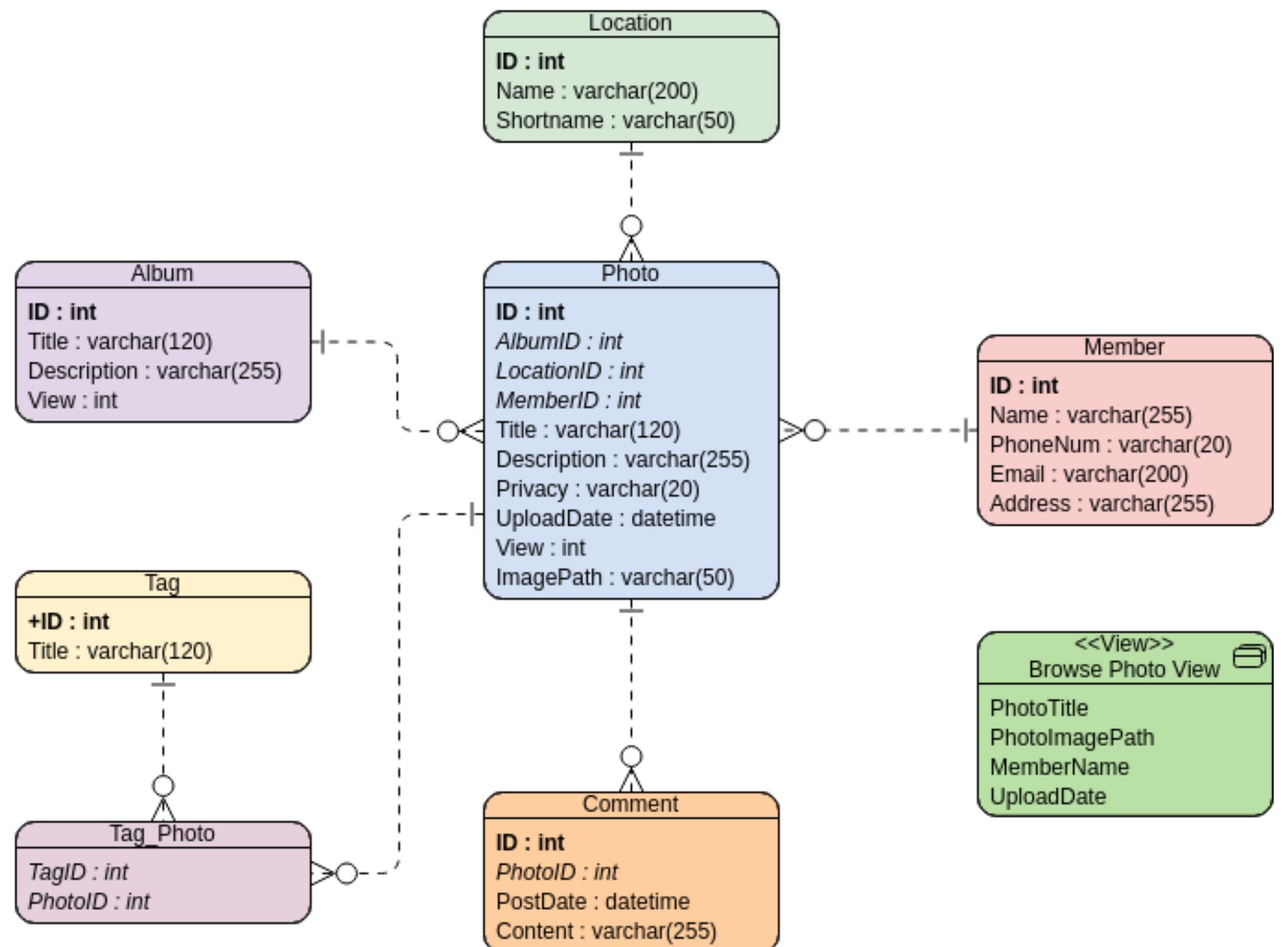
# LEGO SERIOUS PLAY

*A Design Thinking Tool*



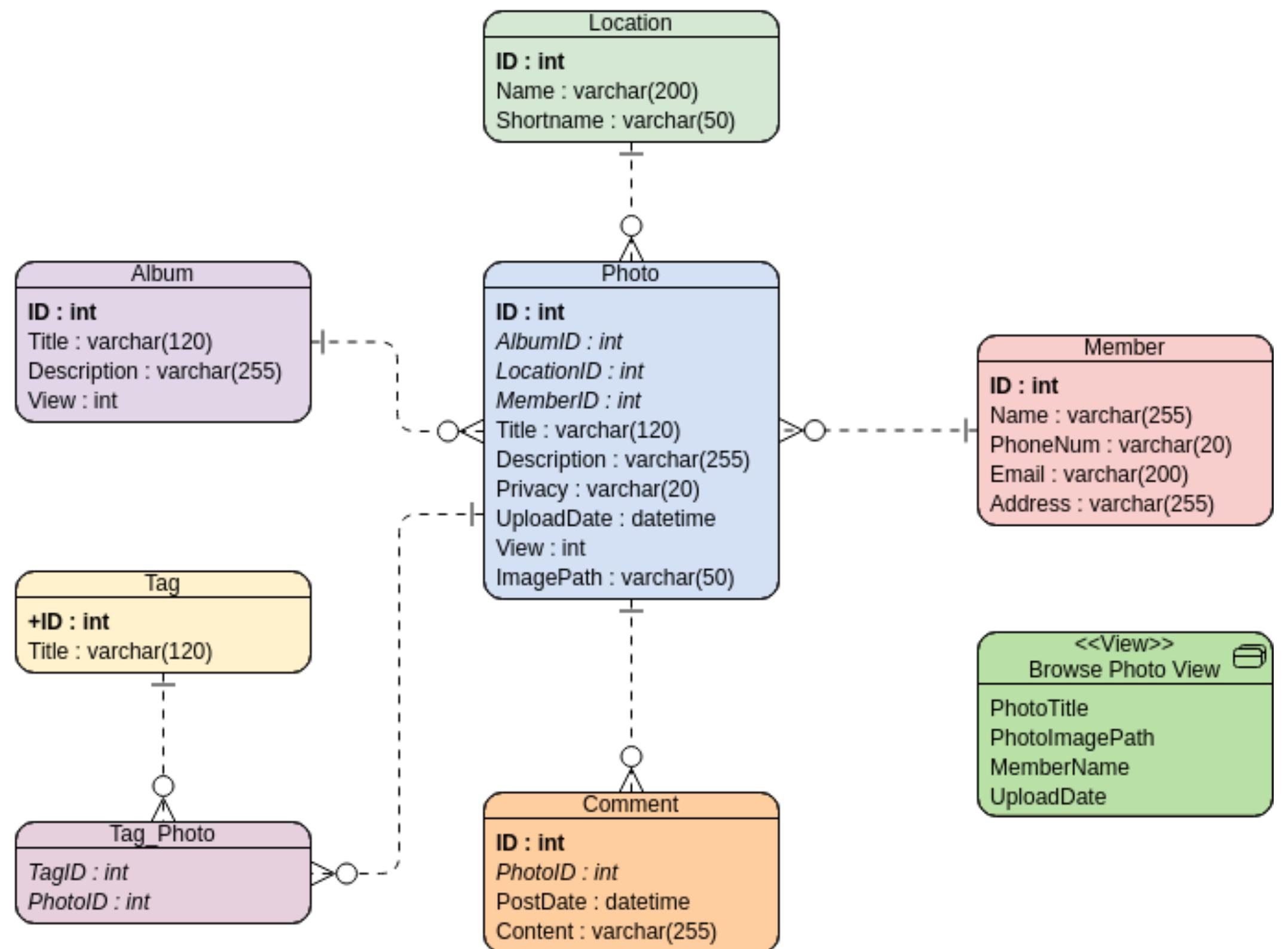
### 3. LOGICAL DATA MODEL

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- Implement High Level Conceptual Schema (tables, columns, keys, relationships)

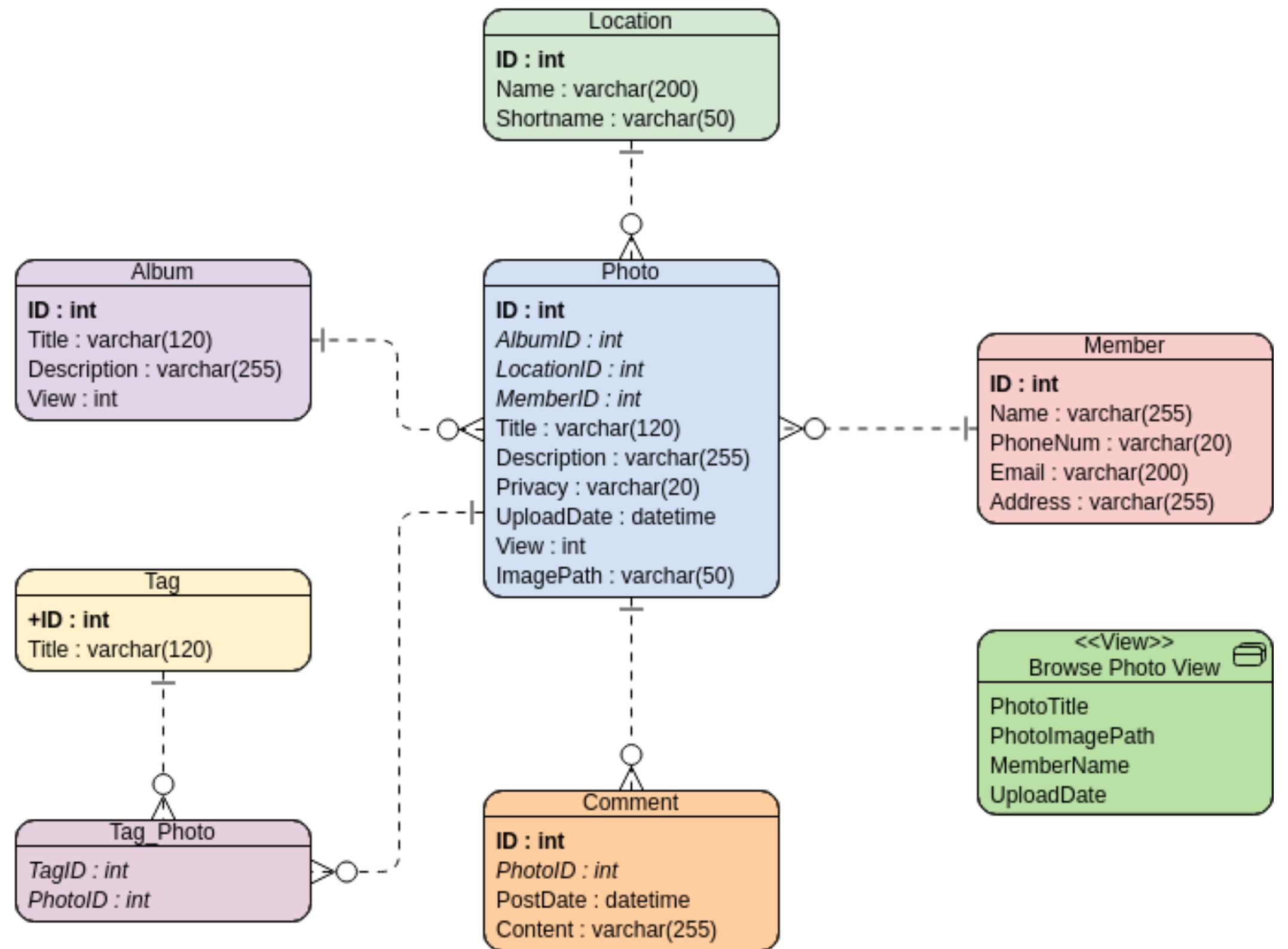
### 3. LOGICAL DATA MODEL



- Implement High Level Conceptual Schema (tables, columns, keys, relationships)
  - Mapping Super-type Entities
  - Mapping Multi-valued attributes
  - Breakdown of Composite Entities
  - Detailing of Relationship attributes

### 3. LOGICAL DATA MODEL

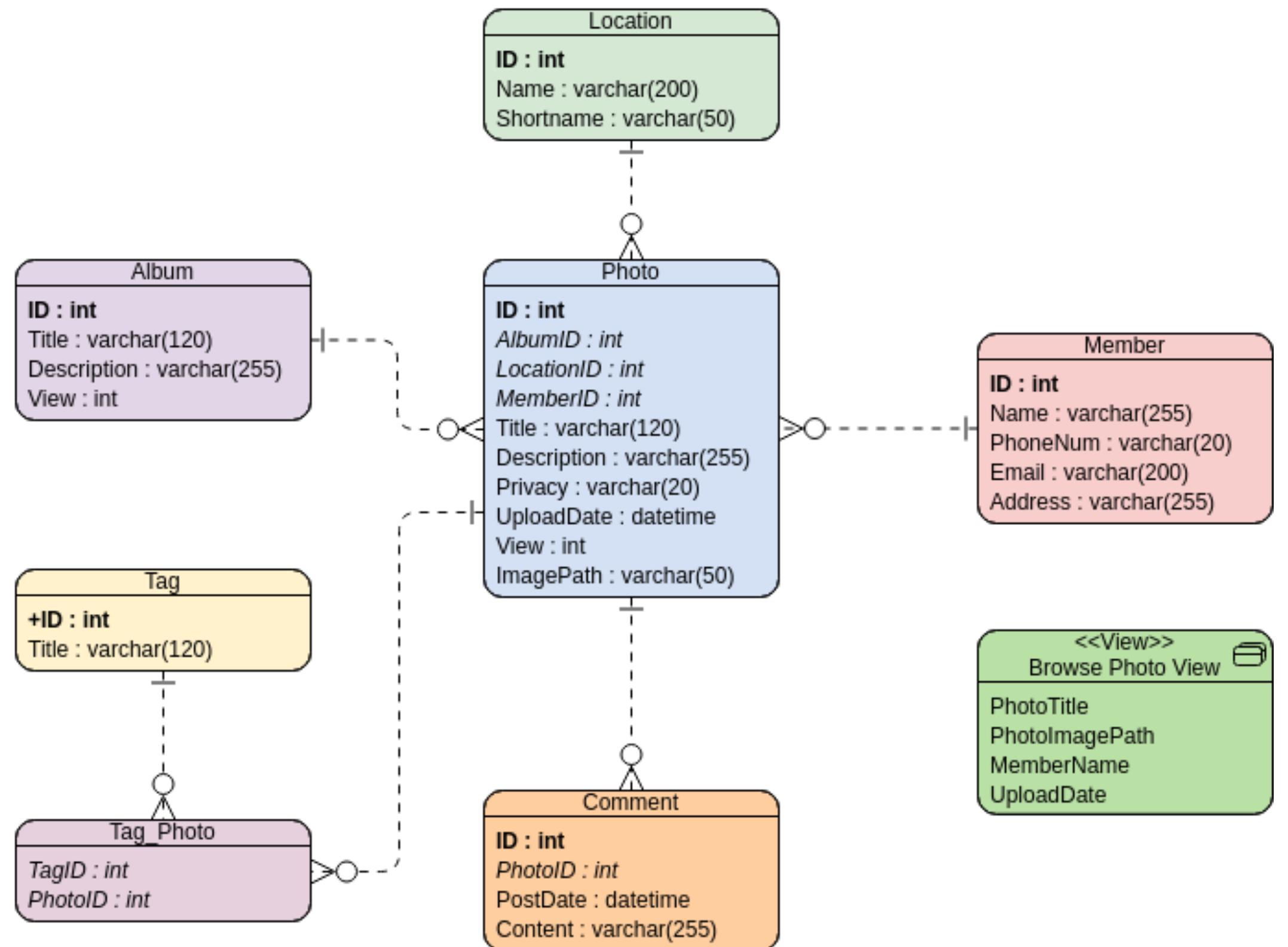
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- Implement High Level Conceptual Schema (tables, columns, keys, relationships)
- Define data types and constraints
- Verify with realistic dataset
- Visualize the user activities with your data model and identify the gaps
- Repeat (*until no gap is identified*)

# 3. LOGICAL DATA MODEL

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*Outcome:*

- Database Schema Diagram
- Visual representation of tables, fields and their connections

# QUESTIONS?