Updated Entity-Relationship Model for Burglary and Theft Management System

1. **Event Table**

    ◦ **Attributes**:
      - **EventID** (PK): Unique identifier for the event.
      - **EventType**: Enum (Theft/Burglary).
      - **EventStatus**:
      - **Date**: Date of the event.
      - **Time**: Time of the event.
      - **Location** (FK): Foreign key linking to the Location table.
      - **Description** : Text description of the event.
      - **Severity**: Severity level of the event (Low, Medium, High)
      - **PoliceID**: Foreign Key From Police Entity.

2. **Theft Table**

    ◦ **Attributes**:
      - **TheftEventID** (PK): Unique identifier for the theft event.
      - **TheftType:** Type of theft (e.g., Vehicle Theft, Shoplifting)
      - **EstimatedLoss**: Total value of stolen items.
      - **MethodOfTheft**: Method of theft (e.g., pickpocket, break-in).
      - **ItemStolen**: Articles that have been Stolen (e.g., Jewelries, Costly Items)
      - **IsReported**: Boolean Value ,Describes whether Item was reported or not.

3. **Burglary Event Table**

    ◦ **Attributes**:
      - **BurglaryEventID** (PK): Unique identifier for the burglary event.
      - **BurglarlyType**: Foreign key linking to the Event table.
      - **PointOfEntry**: Description of how entry was made (e.g., broken window, unlocked door).
      - **Estimated Loss**: Estimated Loss in Amount .
      - **IsSecurityCompromised**: Boolean Value whether Security has been compromised.

4. **Investigation Table**

    ◦ **Attributes**:
      - **InvestigationID** (PK): Unique identifier for the investigation.
      - **EventID** (FK): Foreign key linking to the Event table.
      - **StartDate: Time at which investigation started**
      - **EndDate: Time at which investigation Ended.**
      - **InvestigationStatus:** Current status (Active, Suspended, Closed)
      - **IsEvidenceCollected:** Indicates if evidence has been collected
      - **No. Of Suspects:** Number of suspects identified
      - **Findings:** Summary of findings in the investigation
      - **ResolutionStatus:** Final resolution status (e.g., Solved, Unsolved)

5. **Person Table**

   ○ **Attributes**:
   - **PersonID** (PK): Unique identifier for the person.
   - **Name**: Full name of the person.
   - **Gender**: Gender of Person.
   - **Contact**: Phone number or email address.
   - **DateOfBirth**: Birth date for identification purposes.
   - **StreetAddress**: Residential address.
   - **City:** City of Residing Person
   - **State:** State of Residing Person
   - **ZIP:** ZIP Code of Residing Person

6. **Victim Table**

   ○ **Attributes**:
   - **VictimID** (PK): Unique identifier for the victim.
   - **VictimType:** Describes the type of victim
   - **EmergencyContact**: Amount of compensation received, if any to contact of victim.
   - **VulnerabilityStatus:** Status of Vulnerability

7. **Suspect Table**

   ○ **Attributes**:
   - **SuspectID** (PK): Unique identifier for the suspect.
   - **SuspectStatus:** Describes the Status of Status
   - **ArrestDate:** Date of Suspect Arrest.
   - **PriorConvictions:** Record of any prior Convictions of Suspect
   - **Height:** Height of Suspect
   - **Weight:** Weight of Suspect
   - **Eye Color:** Eye Color of Suspect
   - **LastKnownLocation**: Last known address or location of the suspect.

8. **Witness Table**

   ○ **Attributes**:
   - **WitnessID**: Unique identifier for the witness.
   - **Testimony**: Testimony Provided by the Witness
   - **StatementType**: Text of the witness's statement.
   - **Date Of Statement**: Date when the statement was given.

9. **Police Table**

   ○ **Attributes**:
   - **OfficerID** (PK): Unique identifier for the police officer.
   - **BadgeNumber**: Unique badge number of the officer.
   - **Department**: Name of the department they are assigned to.
   - **Years of Service**: Years served in the Police

10. **Location Table**

   ○ **Attributes**:
      - **LocationID** (PK): Unique identifier for the location.
      - **StreetAddress**: Full address of the location.
      - **City:** Provided City
      - **State:** Provided State
      - **ZIP:** Provided State
      - **Surveillance?**

11. **Evidence Table**

   ○ **Attributes**:
      - **EvidenceID** (PK): Unique identifier for the evidence item.
      - **InvestigationID** (FK): Foreign key linking to the Investigation table.
      - **EveidenceType:** Type of Evidence
      - **EvidenceDescription**: Description of the evidence item.
      - **CollectedDate**: Date when the evidence was collected.

12. **Property Table**

   ○ **Attributes**:
      - **PropertyID** (PK): Unique identifier for the property involved.
      - **PropertyType:** Describes the type of Property.
      - **PropertyDescription**: Description of the property (e.g., type, brand).
      - **Value**: Estimated value of the property.

13. **Feedback Table**

   ○ **Attributes**:
      - **FeedbackID** (PK): Unique identifier for the feedback entry.
      - **VictimID** (FK): Foreign key linking to the Victim table.
      - **EventID** (FK): Foreign key linking to the Event table.
      - **FeedbackText**: Text of the feedback.
      - **FeedbackDate**: Date when the feedback was provided.
      - **Rating**: Numeric rating (1-5) for satisfaction.

14. **Response Table**

   ○ **Attributes**:
      - **ResponseTimeID** (PK): Unique identifier for the response time record.
      - **EventID** (FK): Foreign key linking to the Event table.
      - **PoliceID** (FK): Foreign key linking to the Police table.
      - **TimeReported**: Timestamp when the incident was reported.
      - **TimeArrived**: Timestamp when the first officer arrived at the scene.

New Association Tables for Many-to-Many Relationships

1. **Role**(Links a person to an event with a specified role (Victim, Suspect, Witness, Officer**)**

   Attributes:

   - **EventID** (FK): Links to **Event**.
   - **PersonID** (FK): Links to **Person**.
   - **Role**: Specifies role in the event (Victim, Suspect, Witness, Officer).
   - **DateOfAssignment**: Date the role

2. **Victim Involvement**

   Attributes:

   - **PersonID** (FK, PK): Foreign key and primary key referencing **Person**.
   - **VictimStatement**: Statement provided by the victim.
   - **InjuryLevel**: Enum (None, Minor, Severe) indicating the level of injury.

3. **Witness Involvement Table** (Associates Investigations with Witnesses)

   - **Attributes**:
     - **InvestigationID** (FK): Foreign key linking to the Investigation table.
     - **WitnessID** (FK): Foreign key linking to the Witness table.

4. **Suspect Involvement Table** (Associates Investigations with Suspects)

   - **Attributes**:
     - **InvestigationID** (FK): Foreign key linking to the Investigation table.
     - **SuspectID** (FK): Foreign key linking to the Suspect table.

5. **Property Involvement Table** (Associates Events with Properties)

   - **Attributes**:
     - **EventID** (FK): Foreign key linking to the Event table.
     - **PropertyID** (FK): Foreign key linking to the Property table.
     - **InvolvementType:** Type of Involvement

Modification made after last Assignment Comments by Professor:

Q1) A property can only be involved in one incident?

No, We have updated the relationship between Event and Property into Many to Many and also added a required associative entity.

Q2) DOB is better attribute than Age.

Changed to Date of Birth as new attribute in appropriate DOB

Q3) Any opportunity to use generalization?

Yes, We have generalized Officer, Suspect, Victim and Witness sub entities into generalized Person Entity and theft and burglary sub types into Super entity Event

Q4) Ensure you add more realistic attributes

Added new attributes that match real world settings.

FEEDBACK

PK	FeedbackID
FK	VictimID
FK	EventID
	FeedbackDate
	FeedbackText
	Rating

RESPONSE

PK	ResponseTimeID
FK	EventID
FK	PoliceID
	TimeReported
	TimeArrived

THEFT

PK,FK	TheftEventID
	TheftType
	EstimatedLoss
	MethodOfTheft
	ItemStolen
	IsReported

LOCATION

PK	LocationID
	StreetAddress
	City
	State
	ZIP
	Surveillance?

PROPERTY

PK	PropertyID
	PropertyType
	Description
	EstimatedValue

PROPERTY INVOLVEMENT

PK,FK1	EventID
PK,FK2	PropertyID
	InvolvementType

Event

PK	EventID
	EventType
	EventStatus
	DateTime
FK	LocationID
	Description
	Severity
FK	PoliceID

BURGLARY

PK,FK	BurglaryEventID
	BurglaryType
	PointOfEntry
	EstimatedLoss
	IsSecurityCompromised

INVESTIGATION

PK	InvestigationID
FK	EventID
	StartDate
	EndDate
	InvestigationStatus
	IsEvidenceCollected
	NoOfSuspects
	Findings
	ResolutionStatus

ROLE

PK,FK1	EventID
PK,FK2	PersonID
	Role
	DateOfAssignment

VICTIM INVOLVEMENT

PK,FK1	EventID
PK,FK2	VictimID
	InjuryLevel

VICTIM

PK,FK	VictimID
	VictimType
	EmergancyContact
	VulnerabilityStatus

PERSON

PK	PersonID
	Name
	Gender
	DateOfBirth
	Contact
	StreetAddress
	City
	State
	ZIP

SUSPECT INVOLVEMENT

PK,FK1	EventID
PK,FK2	SuspectID
	InvolvementLevel

SUSPECT

PK,FK	SuspectID
	SuspectStatus
	ArrestDate
	LastKnownLocation
	PriorConvictions
	Height
	Weight
	EyeColor

WITNESS INVOLVEMENT

PK,FK1	EventID
PK,FK2	WitnessID
	StatementDate
	WistnessStatus

EVIDENCE

PK	EvidenceID
FK	InvestigationID
	EvidenceType
	Description
	CollectionDate

POLICE

PK,FK	PoliceID
	BadgeNumber
	YearsOfService
	Department

WITNESS

PK,FK	WitnessID
	Testimony
	DateOfTestimony
	StatementType

Relates to

Generates response

Is involved in

Involves

Occurs at

Is related to

Has details about

Is part of

Assigned to

Affects

Refers to

Acts as

Is linked to

Performs

Refers to

involves

Acts as

Is involved in

Collects

Reponds to

Is officer

Acts as

Offers