

# Team 24 - Project Phase 3

## Relational Model:

**Derived Attributes:** Derived attributes are implemented as queries, can potentially be put in a view. (The attributes in Space Agencies)

### EMPLOYEE

EmployeeID	Name	Nationality
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### AMBASSADOR

Agency_Country	Agency_Name	Name	Nationality	Contact Number	Super_Agency_Country	Super_Agency_Name	Super_Name
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### ROCKET

Model Name	Agency_Name	Agency_Country	Max Payload	Fuel Type	Cost	Year of First Use	Engines	Status	Fuel Efficiency	Reusability
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### SPACE AGENCIES

Country	Name	Public/Private	No of Employees	Location
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### ASTRONAUTS

Astronaut_ID	Mission Status	Name	Nationality
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### MISSION

Name	Available Payload	Timeline	Status	Open for Collaboration	Astronauts Required	Mission Details	Agencies
						Purpose	Celestial Body

### PAYLOAD

Mission_Name	Experiment Name	Weight	Sender_Name	Sender_Country	Carried By Rocket
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### RESOURCES

Mission Name	Resource Name	Quantity	Requesting Agency Country	Requesting Agency Name	Country Requested From
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### MISSION ROCKETS

Mission Name	Rocket Name
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### TRAVELLED ON

Mission Name	Rocket Name	Astronaut_ID
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### CONTRACT

Mission Name	Astronaut_ID	Agency Name	Agency_Country
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### COLLABORATION

Mission Name	Agency1_Country	Agency1_Name	Agency2_Country	Agency2_Name
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### RESOURCE REQUEST

Mission Name	Resource Name	Ambassador1_Agency Country	Ambassador1_Agency Name	Ambassador1_Name	Ambassador2_Agency Country	Ambassador2_Agency Name	Ambassador2_Name	EmployeeID	Agency_Country	Agency Name
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Collapsed developed by relation for rocket into agency attribute.

Quantity no longer part of partial key for resource.

The Represents relationship is implemented as part of the primary key for Ambassador.

### **1NF conversion:**

- Multi valued attribute locations of Space Agency made into a new relation.
- Multi valued attribute agencies of Mission made into a new relation.
- Composite attribute Mission Details broken down into two attributes Purpose, Celestial Body

### **2NF Conversion:**

No changes necessary

- Employee, Astronauts, Mission have a single attribute as a primary key, so no changes are necessary.
- Space agency locations, Mission agencies, Mission rockets, Travelled on, Contract, Collaboration, Resource Request are tables for relationships, so all attributes are part of the primary key and thus no change necessary.
- For other relations, no changes are necessary since there is no partial functional dependency (Relations with a set of attributes as a primary key can have two tuples with all but one primary key attribute same, so no partial functional dependency can exist)

### **3NF Conversion:**

No changes necessary

- Space agency locations, Mission agencies, Mission rockets, Travelled on, Contract, Collaboration, Resource Request are tables for relationships, so all attributes are part of the primary key and thus no change necessary.
- For Employee, Ambassador, Rocket, Space Agencies, Mission, Payload, Resources no transitive dependency exists since there is no functional dependence emerging from a non prime attribute.

### **1NF, 2NF and 3NF:**

[View as svg](#)

## EMPLOYEE

EmployeeID	Name	Nationality
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## AMBASSADOR

Agency_Country	Agency_Name	Name	Nationality	Contact Number	Super_Agency_Country	Super_Agency_Name	Super_Name
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## ROCKET

Model Name	Agency_Name	Agency_Country	Max Payload	Fuel Type	Cost	Year of First Use	Engines	Status	Fuel Efficiency	Reusability
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## SPACE AGENCIES

Country	Name	Public/Private	No of Employees
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## SPACE AGENCY LOCATIONS

Country	Name	Location
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## ASTRONAUTS

Astronaut_ID	Mission Status	Name	Nationality
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## MISSION

Name	Available Payload	Timeline	Status	Open for Collaboration	Astronauts Required	Purpose	Celestial Body
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## MISSION AGENCIES

Name	Agency_Name	Agency_Country
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## PAYLOAD

Mission Name	Experiment Name	Weight	Sender_Name	Sender_Country	Carried By Rocket
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## RESOURCES

Mission Name	Resource Name	Quantity	Requesting Agency Country	Requesting Agency Name	Country Requested From
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## MISSION ROCKETS

Mission Name	Rocket Name
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## TRAVELLED ON

Mission Name	Rocket Name	Astronaut_ID
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## CONTRACT

Mission Name	Astronaut_ID	Agency Name	Agency_Country
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## COLLABORATION

Mission Name	Agency1_Country	Agency1_Name	Agency2_Country	Agency2_Name
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## RESOURCE REQUEST

Mission Name	Resource Name	Ambassador1_Agency_Country	Ambassador1_Agency_Name	Ambassador1_Name	Ambassador2_Agency_Country	Ambassador2_Agency_Name	Ambassador2_Name	EmployeeID	Agency_Country	Agency Name
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