CSCI 41 - F: Information Management

Peer Critique
of Team USA's

Tirian Trains
Group No. 14

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Peer Critique

Document Section	Score	Comments
Description of the System	2/10	-The system description covered various aspects such as operation, maintenance, scheduling, and ticketing. However, there were areas where it needs more information such as the integration of passenger data and the role of stations in the system. The description directly discussed 4 main entities: Train Model, Train, Route, and Trip. Other entities like Maintenance Report, Trip Itinerary and Ticket were briefly discussed in this section. There were entities mentioned in the Conceptual Data Model that were not explicitly covered in the Description of the System: • **Passenger** – The description mentions recording passenger information in the context of ticket purchases but does not explicitly mention the "Passenger" entity as part of the system. The conceptual data model indicates that passengers are a key component, which is not fully reflected in the description. • **Train Ticket** – While the description refers to ticket purchases, it does not explicitly mention the "Train Ticket" entity as a distinct part of the system. The conceptual data model, however, shows that train tickets are a core component of the system, suggesting this could have been better highlighted in the description. • **Trip Itinerary** – Although the description hints at a trip itinerary for inter-town tickets, it does not mention the "Trip Itinerary" entity directly. This entity is clearly part of the system in the conceptual data model, but the description leaves it largely implied rather than explained. • **Trip Schedule** – The description briefly touches on the system's role in managing schedules but does not mention the

		"Trip Schedule" entity. The conceptual data model introduces this as a key entity, implying that the scheduling component is more structured than the description suggests. • **Inter-Town Ticket** and **Local Ticket** – The description does not make a clear distinction between inter-town and local tickets as separate entities, though this distinction is clearly presented in the conceptual data model. The description refers to tickets generally, leaving out the explicit existence of different ticket types. • **Inter-Town Trip** and **Local Trip** – While the description refers to inter-town and local trips, it does not indicate that these are separate entities within the system. The conceptual data model explicitly shows "Inter-Town Trip" and "Local Trip" as distinct, which is only implied but not fully discussed in the description. • **Station**- it was only explicitly mentioned in the Route entity that there are at least two types of stations: Local and Inter-Town. The description in Chapter 1 referred to train routes but did not explain further the role of stations in the system. • **Trip Schedule** – The description makes no mention of a "Trip Schedule" entity, despite it being an important part of the system in the conceptual data model. The omission of this entity suggests the description could have more clearly defined how scheduling is handled. • **Maintenance Report** – While the description discusses train maintenance, it does not specifically reference the "Maintenance Report" entity. The conceptual data model highlights this as a key entity, showing that maintenance reports play a central role in the system, which is not fully conveyed in the description. • **Maintenance History** – The description vaguely mentions recording maintenance history but does not explicitly introduce the "Maintenance History" entity. The conceptual data model shows that this is a distinct component, which the description could have highlighted more clearly.

		Provided assumptions and limitations for the system but they were incomplete. It should include additional assumptions about passenger behavior and more specific limitations regarding system functionality and scalability. During the creation of relationships, assumptions should be stated if they are not in the original specs else they should be described as a feature of the system. Here are some assumptions that weren't mentioned in the description but presented in the Conceptual Data Model • A train model can have no deployed trains. • A train can only have 1 train model. • A train must have at least 1 route. • A route must be used by at least 1 train. • A local route must have at least 1 local trip. • A local trip must have only 1 local route. • A local station must have at least 1 local trip. • A local trip must have at least 1 local station. • An inter-town station must have at least 1 inter-town trip. • An inter-town trip must have at least 1 inter-town station. • An inter-town routes must have at least 1 inter-town trip. • An inter-town trip must have only 1 inter-town routes. • An inter-town trip must have at least 1 trip itinerary. • A trip itinerary must have at least 1 inter-town trip. • An Inter-town ticket must have only 1 trip itinerary. • A trip itinerary must have only 1 inter-town ticket. • A trip must have only 1 trip schedule. • A trip schedule must have at least 1 trip. • A passenger must have at least 1 train ticket. • A train ticket must have only 1 passenger. • Train tickets purchased in advance for a trip itinerary must be on the same day. The section could benefit from clearer organization. Some details, like assumptions and limitations, feel mixed in with operational features, as seen in the second paragraph. For these, it might be helpful and more organized if we separate the components into

		distinct sections (e.g. "Overview," "Assumptions/Limitations," "Features"). Some features that were not explicitly mentioned. • Trip schedules change on a daily basis • Tickets may be purchased in advance
Conceptual Data Model	20/50	Design is convoluted, which may lead to confusion • Simplify to improve clarity • Maintain consistent plurality (Ex. Routes xor Route). Singular form is slightly preferred. Some attributes appear to be missing Although EERD contains essential information, it seems overly complicated for the system's needs • There are instances where two entities can be condensed into one for clarity without losing accuracy (Ex. Maintenance Report and Maintenance History) Individual EERDs are not present for each user view. It can be inferred that a misinterpretation of the specs occurred. Each user view was interpreted as an entity and the model was constructed based on that. The use of a subtype and supertype must be clearly justified. There were cases where subtypes were used but the distinction provided no value. Here are examples: • The specification clearly states that all trains operating within the locality of Western Woods are S-series, and all inter-town trains are A-series. The conceptual data model does reflect this distinction with the **S-Series Train and A-Series Train** entities. However, the model could have highlighted more clearly how the system enforces or validates this distinction (e.g., ensuring that no A-series trains operate in local routes). The relationship between "Routes" and these specific train types could have been made more explicit to avoid any

		confusion about which series is operating on which routes. • The distinction between **Inter-Town Ticket** and **Local Ticket** is an unnecessary division. According to the system specifications, both tickets serve the same purpose: they allow passengers to take trips on the trains. The only difference between them is the type of trip they are associated with—inter-town trips tend to be longer and have variable costs, whereas local trips are short with fixed costs. This could be easily handled by a single **Ticket** entity with a Ticket_Type attribute to differentiate between local and inter-town tickets. This distinction actually led to a **mistake** where trip itineraries can only contain inter-town tickets which is a **crucial mistake** as it blocks anyone from boarding any local trip. • The subtypes for Routes, Stations, and Trips are optional as they essentially have the same relationships with each other (Routes specify a direct path between Stations, Trips define a scheduled route) with the minor nuance that Routes can only connect Stations with the same Station_Type as Route_Type and Trips can only schedule Routes with the same Route_Type as the Trip_Type. The only difference is that Inter-Town Trips must have a Cost and Duration_Time since it varies while in Local Trip these remain constant/implied. Since this is a design choice that the group made, it would be ideal if this was displayed better visually by aligning all the similar types in a horizontal or vertical manner so that the relationships are easily seen and the length of the relationship symbol is minimized.
Data Dictionary	15/20	Overall strength/s: ➔ Entities and corresponding attributes are organized in a consistently patterned table, making it easy to read and digest. Comments: ➔ For the *Possible Values,* the document could be enhanced by

		providing more conditions or constraints for the attribute values, such as: ◆ Specifying the variable type (integer,string, etc.) ◆ Specifying whether certain values must be non-negative or not ◆ The format for time attributes (e.g. Standard Time, Military Time). ◆ Max Character count (preferred for most efficient data allocation) ➔ There were some errors in the *Possible Values:* ◆ Disability Access should be a possible value for {*Passenger_Amenities*}
Train Model		➔ Could've been condensed into the Train entity ➔ Subtypes determined by Train Series are becoming redundant with other entity subtypes (i.e. Inter-town & Local Routes, Inter-town & Local Tickets, Inter-Town & Local Trips). These subtypes are also unused.
Train		➔ Should have the subtypes so that each could be connected respectively to Inter-Town Routes or Local Route.
Train Maintenance		➔ Maintenance History should not be an associative entity since it is not a many to many relationship. ➔ It was stated in the description that "new trains may not have a maintenance history yet." yet in the ERD, a train must have a maintenance history. Should be set to 0 or 1 ➔ Maintenance Report and Maintenance History could have been condensed into one entity connected to Train. ➔ Also, "an entity should not be an output of the database system (e.g. a report)."
Routes		➔ Redundant, as Starting Station and Ending Station attributes are already addressed in the Origin and Destination attributes of the Trip entity. ➔ Number of Trips is also unnecessary, not to mention redundant with the Number of Trips attribute of the Trip

		Itinerary entity. ➔ Does not make sense to have an Expected Duration attribute, considering the specs indicate that travel time from one town to another is variable. ➔ Differentiating between Inter-town and Local subtypes is unnecessary, considering the redundancy with other entity subtypes and the lack of unique attributes.
Trip		➔ It does not make sense for the Duration and Cost attributes to be unique to the Inter-town Trip subtype, even if the cost and duration for local trips are fixed, as it should still show up on the report for ticket sales. ➔ Some attributes of other entities can be incorporated into this entity.
Trip Schedule		➔ Redundant entity as it records the same attributes as Trip Itinerary, as of the specs. ➔ Record should include Duration and Cost, as indicated in the specs, but these are attributes specific to the Inter-town Trip subtype. What about in the case of a Local Trip? ➔ Date attribute could have been incorporated into the Trip entity. It is also redundant with the Date attribute in the Train Ticket entity. ◆ It is possible that the group could have meant for them to be different attributes, as in Date of Trip and Date of Ticket Purchase. If so, attributes should be renamed for clarity. ◆ However, the descriptions for both are similar and thus, the attribute should be present in only one entity.
Trip Itinerary		➔ Does not make sense for only inter-town trips to have a trip itinerary, even if the cost and duration for local trips are fixed, as it should still show up on the report for ticket sales. ➔ Include how trip itineraries are generated for reporting purposes.
Train Ticket		➔ Contains an attribute for Total Cost, but this cannot be calculated for local trips, considering the Cost attribute is

		unique to inter-town trips only. Taking this into account, Inter-town and Local subtypes need not be specified.
Station		➔ Attributes are already addressed in the Origin and Destination attributes of the Trip entity. ➔ Differentiating between Inter-town and Local subtypes is unnecessary, considering the redundancy with other entity subtypes and the lack of unique attributes.
Passenger		➔ Complete

Aspect	**Score**	**Comments**
Organization and Grammar	4/5	Follows the correct order of content but the coherence and organization could be improved.
Format	5/5	Follows the given format