1. **Winfield Public Transit Authority**

Winfield is a small city with a population of 22,000. Until now, Winfield was served by a bus route from a nearby city. The Winfield City Council has held a bond sale to fund the purchase of several buses to serve three routes in Winfield and neighboring areas. As the city’s IT director, you have been asked to set up an information system for the new Transportation Authority. Assume that multiple buses will run on each route.

**Tasks**

1. Draw an ERD for the Winfield Public Transit Authority system.
2. Indicate cardinality - by indicating the crow-foot notation.
3. Identify all fields you plan to include in the tables.
4. Create 3NF table design (Design the tables with no repeating groups.)
5. **Working Shoes**

Working Shoes is a multistate shoe store that offers an extensive selection of casual and dress shoes designed for men and women who work on their feet. Working Shoes plans to launch a new Web site, and the company wants to develop a new set of product codes. Currently, 250 different products exist, with the possibility of adding more in the future. Shoes and many accessories come in various sizes, styles, and colors. The marketing manager asked you to develop an individualized product code that can identify a specific item and its characteristics.

**Tasks**

1. Design a code scheme that will meet the marketing manager’s stated requirements for at least 10 examples.

| ***Item*** | ***Product Code*** |
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1. Write a brief memo/email is fine to the marketing manager suggesting code proposed, and state your reasons.
2. Suggest a code scheme that will identify each specific order. Consider using the date or type of transaction such as web or in store purchases.
3. **Data Design Terms**

**Briefly define the following terms (use 2-3 sentences)**

| ***Term*** | ***Definition*** |
| --- | --- |
| *Attribute* |  |
| *Crow’s feet notation* |  |
| *Entity* |  |
| *JDBC* |  |
| *Primary Key* |  |
| *Referential integrity* |  |