

The musical group *Tower of Power*<sup>1</sup> has hired you to design a database to store information about the performances on their concert tours. The table below shows information from previous tour stops. Each concert can have many songs and each song can be performed in many concerts. Each concert is at one location (venue) and each venue can host many concerts over time.

Date	Tickets Sold	Venue	City	Song Sequence	Song Duration*	Reaction**	Address	State	Concert Start Time	Concert End Time
7/11/1996	2,444	Celebrity Theatre	Phoenix	1. Souled Out 2. So Very Hard To Go 3. Soul Vaccination 4. I've Got To Groove 5. Soul With a Capital "S" 6. Down to the Night Club	3:14 3:22 8:04 3:52 4:33 3:03	5 4 3 5 5 4	2100 N 32 <sup>nd</sup> Street	AZ	8:00 pm	11:30 pm
7/12/1998	7,421	StarLite Pavillion	Reno	1. Souled Out 2. I Like Your Style 3. The Real Deal 4. I've Got To Groove	3:22 4:05 3:48 4:12	5 5 2 1	22332 E Rim Drive	NV	7:00 pm	10:15 pm
7/30/1998	3,008	Celebrity Theatre	Phoenix	1. Down to the Night Club 2. Soul Vaccination 3. ~~~~~	3:07 6:33 ~::~	5 4 ~	2100 N 32 <sup>nd</sup> Street	AZ	8:30 pm	10:45 pm

\* Notice that a song's *Duration* can vary from one performance to another.

\*\* *Reaction* is a number between 1 and 5 that indicates how loudly the crowd cheered at the end of the song.

In addition to the items above, the band's manager has decided the new database must also track:

- number of arrests at each concert
- whether the venue is an indoor or outdoor setting
- the year each song was written
- number of T-shirts sold at each concert

**Develop an appropriate set of 3NF tables. Document your design with *complete shorthand notation* and an *ER diagram*.**

**Enhancement:** Rather than storing the overall number of arrests per concert, the band's management wants to track the number and type of arrests for each concert. For example, 6 littering, 3 public urination, 2 disorderly conduct at the 7/11/96 concert.

<sup>1</sup> This band, whose self-described style is "hard driving soul music", was formed over 35 years ago. Each year, they record new material and play concerts all over the world. Their web site is [www.towerofpower.com](http://www.towerofpower.com). Several YouTube videos are also available.