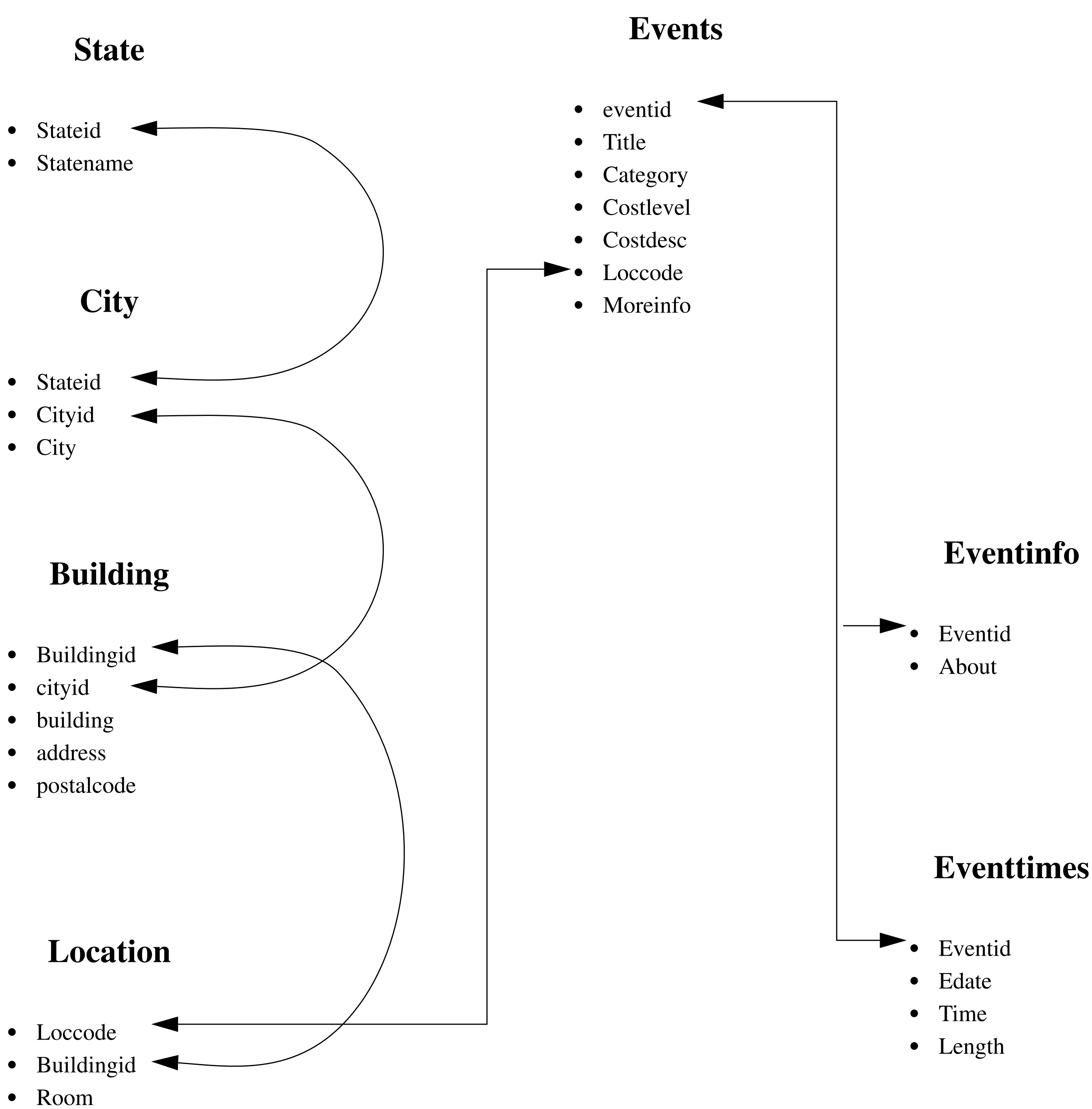
**Entity Relationship Diagram for the
Events and Locations Database**



Currently the Events database is geared towards singular events (i.e. events that occur only once or twice.) This is because we store the beginning time and length in a table. This is inefficient for repeating events such as long running movies, plays and art exhibits. A separate database or redesign may be required for these events.

Another database being considered is a ‘Personnel’ database. People could use this to create their own personal schedules. This would also allow you to ‘sign’ up for an event, and browse a list of attendees for an event.

A rating system for events could be established, allowing someone to ‘vote’ for a specific event. You could then search for highly rated events.

7.0 Technical Details

7.1 Internet Gopher and the Gopher Protocol

Internet Gopher is an information system used to publish and organize information on servers distributed across the Internet. Initially developed at the University of Minnesota in early 1991, it has spread to over 4800 sites worldwide as of December 1993.

The Gopher system is a client-server system that can be used to build a Campus Wide Information System (CWIS). Clients, which browse and search information are available for most major platforms (Macintosh, DOS, Windows, Unix, VMS, MVS, VM/CMS, OS/2). Servers, which translate and publish information, are also available for all of the platforms mentioned above.

This client-server architecture uses the Internet Gopher Protocol. The Gopher protocol has been described as “brutally simple.” It is based on a web/tree metaphor of files and directories. Its basic primitives are a list directory transaction, a retrieve file transaction and a search for directory entries transaction.

7.2 SQL Database Details. Entities and Relationships

The following page contains a diagram of the tables contained in the database. Each table is represented by it’s name followed by a bulleted list of the columns. Arrows connect columns that reference other tables.

A number of views are defined to make searching the database easier. The view *Eventview* contains the most popular fields for searching and joins the location, building, events, eventtimes, and eventinfo tables together. An *Eventinserter* view is used to insert items into the database. The *Eventplace* view joins together the location, building, and city.

A number of indexes are also created, to increase the performance of searches.

7.3 The Gateway Software

The software that brings allows access to the database is Gophersql. Gophersql was developed by the University of Minnesota to allow Internet Gopher Clients access to a SQL database such as Oracle or Sybase.

The SQL gateway allows the Gopher Client to:

- View the tables of a database as a Gopher directory
- View the columns of a given table as a Gopher directory
- View the contents of a column as a Gopher directory
- View records as formatted text.
- View/import records as tab-separated-values
- Add records to a table.
- Search the table by filling out a Gopher+ form.

The gateway is available via anonymous ftp from

boombox.micro.umn.edu

via anonymous ftp from the directory

/pub/gopher/Unix/gopher-gateways/gophersql

The files used to construct this events database are included in the distribution.

7.4 Accessing the Gateway

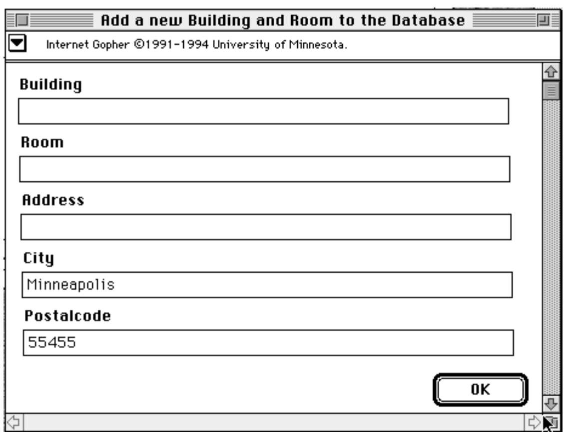
To access the Events database you can connect to the machine *arcwelder.micro.umn.edu* on port 70.

5.0 Event and Location Data Management

A number of forms are defined for adding data to the events database. The first form is for adding a Building/room to the list of locations.

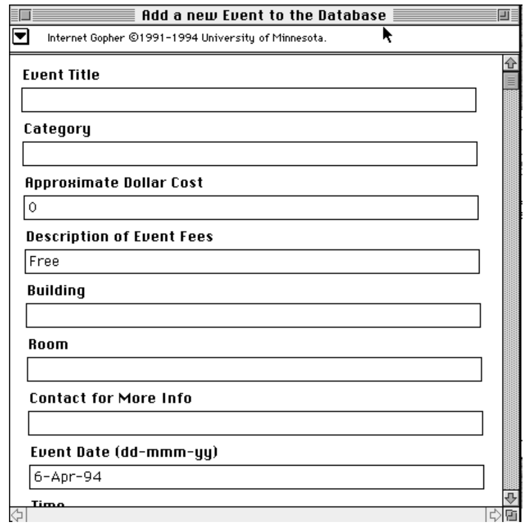
The gateway software does some intelligent checks to insure that the city is in the database and checks for matches in the database.

FIGURE 7. Adding a New Location



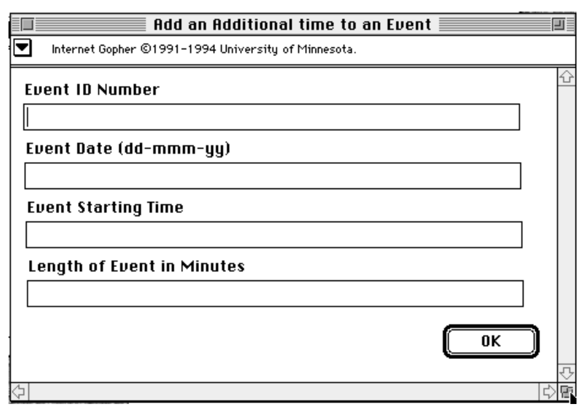
The second form is used to enter information about the event. Again, a number of consistency checks are done.

FIGURE 8. Adding a New Event



For events that have more than one showing (movies, plays, etc.) we have another form for adding a time to a current event. This form can be used as many times as necessary to add Show Times to an existing event.

FIGURE 9. Adding an Additional Date and Time



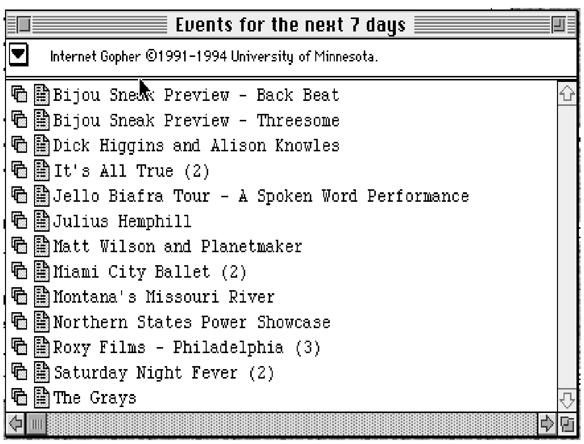
6.0 Future plans

The Locations database will eventually interface with a database of Maps and Coordinates, allowing one to browse locations graphically. In the future this database might contain three dimensional renderings of geography.

George can quickly browse the Events for Today items. They make great bookmarks, since they change every day. The first item returns the items listed in a directory, this is best for browsing. The second item is a file containing all the events for the day. This is handy for printing out.

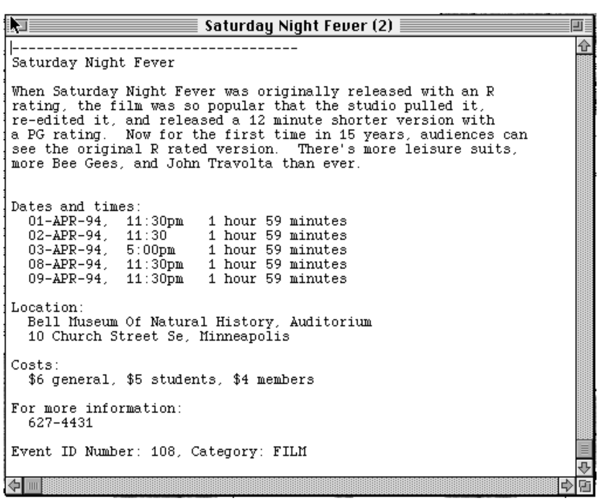
George is looking to the weekend however, so he selects "Events for the next 7 days".

FIGURE 3. Events for the Next 7Days



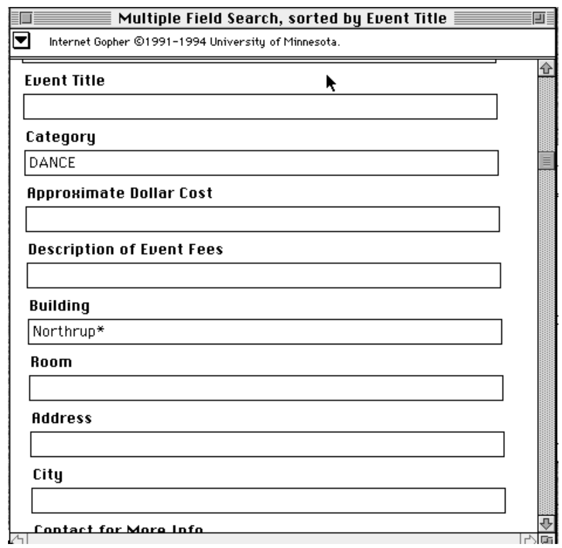
And, lo and behold, he sports "Saturday Night Fever."! George notices that there are two showings coming up, so he clicks on the item and gets the description of the event:

FIGURE 4. Saturday Night Fever Event



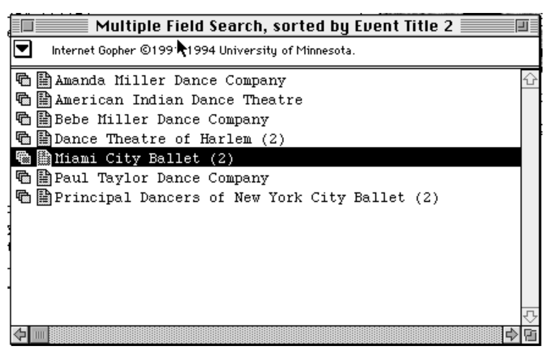
Cool! George gets his leisure suit ready for the cleaners and looks further for something later in the week to do.This time he knows that there's a performance at Northrup that he wants to see, so he selects the Multiple field search and searches for the Building Northrup and the category DANCE.

FIGURE 5. Multiple Field Search



Then he gets a list of items that match his specified criteria, all DANCE events in buildings named Northrup.

FIGURE 6. Dance Events at Northrup



George looks through the items there and finds out that the Miami City Ballet is playing for the low low price of $16.50.

- Information dissemination is the key to getting commuter students involved in their campus community; the University of Minnesota doesn't have the benefit of being a small 'college town.' Thus the database helps foster a sense of student community on a large campus.

3.0 The Database

The database consists of two major portions, the Locations database, and the Events database. Both portions are integral to having a well managed events database.

3.1 Locations

The Locations database contains information about various venues where an event occurs, such as the Building name, Room name/number, street address, postal code, etc.

By having a very accurate locations database people can search the database for events that are located in a specific areas. For instance, you could search for events "nearby" that are in the local postal/zip code. Or, you could browse by state, city, building, and then room.

3.2 Events

The Events database contains information about the actual event, such as the title, category, cost, contacts for more information, date, time, length, and description, etc.

You can browse the Events portion of the database in many ways. You can browse by the category of events, or by date. A special feature allows you to get a listing of all the events for the current day, and the week ahead.

There are many ways to search the events database. The database is keyword indexed, so you can find events that have a certain word in their description. Or, you can fill out a form that lets you find events with a high degree of accuracy. This form allows you to specify the exact matches you want for any of the fields in the database. For example, you could search the database for all events that cost less than $5, are in the category 'CONCERT' and are in the zip code '55455'. This search can be put on a menu item if one wishes. (You might name this item 'Cheap Concerts on the Minneapolis Campus')

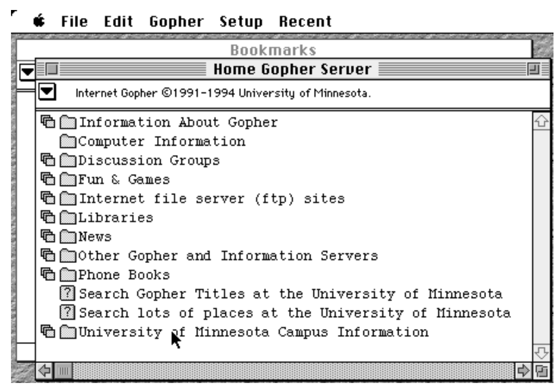
4.0 A Tour of the Database

Let's follow the travels of a hypothetical student named George. George is bored. He has a bundle of cash burning a hole in his pocket. He wants to do something.

So George fires up his SLIP connection and gets connected to the U of M network and launches his favorite gopher client, Turbogopher for his Macintosh.

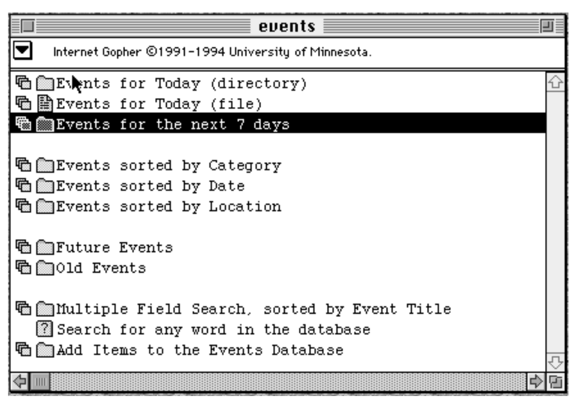
He gets a screen like this:

FIGURE 1. Getting Into Gopher



George is one smart dude, so he uses his built in bookmark to access the Database of events. He then gets a number of choices. He can browse the database by type, location or date or he can search for a specific event.

FIGURE 2. Starting Screen for the Events Database



A Gopher Events Database using Sqlgopher.

Paul Lindner

In this paper we describe the implementation of a database of Events. The data is stored in an Oracle SQL database. Access to this database (additions, deletions, browsing and searching) is done using Gopher clients. A special Gopher to SQL gateway provides the necessary glue to bind it all together.

April 13, 1994

1.0 Introduction

At one time the University of Minnesota had a centralized list of upcoming events on campus, a secretary in the University Relations office typed them all up and ran an ad in the student newspaper. Due to budget cuts this labor intensive and expensive procedure was discontinued in 1991.

The need for a centralized list of events was still there however. Thus, in fall 1992 Distributed Computing Services started offering organizations on campus the opportunity to post events on a centralized gopher server using the FTP file transfer protocol.

This scheme worked fairly well: it offered a central repository for people to store events, the cost was low (all data entry was done by the event sponsors) and the full text indexing was sufficient for searching.

There were some problems with this approach however. You could only browse the list of events in one way, sorted by event sponsor. Event entries were inconsistent despite specific instructions given to the event sponsors. The full text search was inconsistent, you couldn't separate out events based on cost, location or category very easily. Using FTP to add data was cumbersome at best.

Starting in spring 1994 we're starting a new, more sophisticated central repository of events. The new system offers the following features:

- Events can be sorted by Date, Location, Category, or Price.
- Online adding of events using Gopher+ forms.
- Sophisticated form based searches.

The events are stored in an Oracle SQL based database. This allows for high consistency and quick access. A gopher to SQL gateway permits access to the database using the Gopher protocol.

2.0 Why an Events Database?

A campus/metropolitan wide events database brings the community many benefits:

- Event goers can browse and search for events of interest more easily than poring through the student newspaper and a pile of flyers.
- Event schedulers can find opportunities for collaboration with other organizations.
- Event schedulers can plan events so they don't coincide with other events.