

AI Planning Final Report

Thomas Wambold
taw38@drexel.edu

September 4, 2009

1 Introduction

This report describes DMF, the **D**inner and a **M**ovie **F**inder Service. DMF is a process which allows users to find movies playing in local theaters, along with restaurants in the area. The service can then purchase tickets and make dinner reservations automatically. DMF includes elements of data mash-ups and web service aggregation.

The goal of DMF is to provide users with a quick and easy way to schedule a night out. A user would be able to input their location (possibly using a GPS device or similar means of autodetecting a users current location), and get back suggested itineraries of movies to see in the area, along with local restaurants. These suggestions for movies and restaurants would come from various movie and restaurant review services, to ensure the user is not wasting their time going to a bad movie or dinner.

The key feature would be the services ability to automatically purchase the best movie tickets, and make reservations for a meal a short time before or after the movie (depending on showtime and movie length) for the user. All the user would have to do is show up at the theater and restaurants at the right time, and not have to worry about making plans for the evening.

This report is organized as follows, Section 2 provides an overview of each component of the system. Section 3 gives an overview of where the data for these services would be obtained from, and how services would be discovered. Finally, some concluding thoughts are provided in Section 4.

2 Service Overview

DMF consists of an aggregation of several discreet services:

- **Geolocation** - Used to locate businesses near a particular location.
- **Movie Showtimes** - Returns movies and showtimes for particular theaters.
- **Movie Rating** - Returns ratings and recommendations for movies.
- **Movie Ticketing** - Allows for purchasing tickets to a movie.
- **Restaurant Descriptions** - Looks up menus and such for given restaurants.
- **Restaurant Reservations** - Make reservations for restaurants at particular times.

2.1 Geolocation Service

The geolocation service is the core service that ties the other services together. It provides the means to locate the movie theaters and restaurants used by the other services. The location sent as input to the geolocation service does not necessarily need to be the user's current location, but could be somewhere where they plan to be in the future.

Inputs This service would take a coordinate as input. This could be read from a GPS device or via an IP address lookup.

Outputs After reading the coordinate, the service would return a list of nearby movie theaters and restaurants.

2.2 Movie Showtime Service

This data service provides times that will later be used to schedule a dinner some time before the chosen movie.

Inputs This service would take a movie theater name returned from the geolocation service.

Outputs The showtime service would return a list of movies and times for each showing.

2.3 Movie Rating Service

Another data source which is important for choosing a good movie for the user to see if they do not have one already in mind. This could possibly collect data from the user to adjust recommendations to user preferences.

Inputs A title for a movie.

Outputs An average rating for this movie.

2.4 Movie Ticketing Service

One of the two transactional services, the movie ticketing service might need to collaborate with the restaurant reservation service to validate information such as credit card numbers, which could be its own discreet service.

Inputs A theater name, a movie name, a time, and a valid credit card number.

Outputs A virtual movie ticket, which would be claimed at the theater.

2.5 Restaurant Description Service

This, along with the movie rating service, is the core for making recommendations to the user about good places to eat. Again, like the movie rating service, could respond to user preferences for things such as food style, price, etc.

Inputs A name of a restaurant.

Outputs Information about the restaurant; ratings, menu, price, etc.

2.6 Restaurant Reservations Service

This service is responsible for making the reservations for whatever restaurant the user chooses. An extension of this could be to make a service to allow cancellations/rescheduling of reservations in case the user's plans change.

Inputs A name of a restaurant and a time.

Outputs A confirmation or error stating whether the reservation was successfully completed.

3 Data Sources and Composition

There are many possible data sources for these services. The geolocation service could be provided by something like Google Maps¹. The showtime service could be provided by Ignyte². Rotten Tomatoes³ is a good source for the movie rating service. For restaurant descriptions, something like Zagat⁴ would be a good source.

Some services, such as the movie ticketing service and the restaurant reservations service, would need to be composed of a few separate services. Both would probably use some sort of payment verification system to process credit card orders and such. While there are websites like ⁵, I don't believe such a service exists for restaurants.

This restaurant reservation system could potentially provide a front-end for reservations services many different restaurants. These could be mapped to a single service using techniques discussed by [1]. New restaurants and theaters could be discovered and mapped as discussed in [2].

4 Conclusions

Another service that DMF might be able to utilize in order to provide a better experience are the users schedule, from something such as Google Calendar. This would allow for more intelligent choices for movie showtimes to suggest.

While not a whole lot of computation is going on to power most of this service, finding and mapping the data sources and services to a consistent interface is important. Also, aggregating multiple services together for use in the reservation or ticketing service could be non-trivial, especially when dealing with services run by different competing companies.

DMF provides for opportunities for aggregating many data sources along with more complicated processes such as handling online ticket purchases. It would provide the end-user with a very convenient way to make plans. Incorporation of user preferences and additional data sources and services make this an interesting use-case for developing applications dealing with web services and process modeling.

References

- [1] Natalya F. Noy. Semantic integration: A survey of ontology-based approaches. *ACM SIGMOD Record*, 33(4):65–70, December 2004.
- [2] Massimo Paolucci, Takahiro Kawamura, Terry R. Payne, and Katia Sycara. Semantic matching of web services capabilities. In *The Semantic Web—ISWC 2002*, volume 2342 of *Lecture Notes in Computer Science*, pages 333–347. Springer Berlin / Heidelberg, 2002.

¹<http://maps.google.com/>

²<http://www.ignite.com/>

³<http://rottentomatoes.com/>

⁴<http://zagat.com/>

⁵<http://movietickets.com/>