Feature Selection

1. movies/list feature
   - browse all movies
   - browse all theaters
   - filter movies by name
   - filter theaters by name
   - browse all movies playing in a particular theatre
   - browse all theaters playing a particular movie

2. time/date search feature
   - search by time at all theaters
   - search by time for specific theatre

3. admin feature
   - add movies
   - delete movies
   - edit movies
   - add theaters
   - delete theaters
   - edit theaters
   - edit showtimes
   - add showtimes
   - delete showtimes

4. report feature
   - sales report
   - inventory report
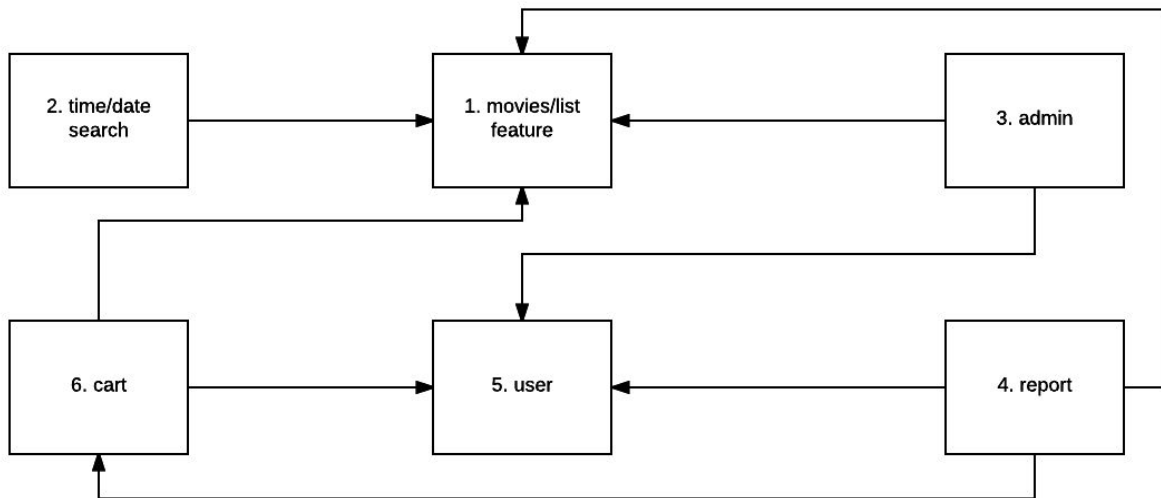   - showtimes report

5. user feature
   - define if admin/customer
   - active or inactive
   - create user

6. cart feature
   - purchase movie

SOA and Microservices Deployment

Diagram:

Object Attributes:

1. Movies:
   a. title
   b. showtimes
   c. rating
   d. length

2. Theatres:
   a. name
   b. address
   c. current movies

3. Users:
   a. name
   b. status
   c. type (customer/admin)
   d. purchase history

Components and micro services deployment plan:

- config: Kubernetes config map/secrets
- Discovery: Kubernetes
- API gateway: Google endpoints
- monitoring: GCP Stackdriver
- logging: GCP Stackdriver
- tracing: Google Stackdriver trace
- pub/sub: GCP pub/sub
- Distributed Cache: firebase
- persistent storage: firebase

Test Cases:

1. any user can browse all movies
2. any user can browse all theatres
3. any user can filter movies by name
4. any user can filter theatres by name
5. any user can browse movies of a specific theatre
6. any user can browse all theatres playing a specific movie
7. any user can search movies being played at a specific time across all theatres
8. any user can search movies being played at a specific theatre at a specific time range
9. admin can add/edit/delete movies
10. admin can add/edit/delete theatres
11. admin can add/edit/delete showtimes
12. customer can not access admin features
13. customer can not access report feature
14. customer can not access user feature
15. admin can access sales, inventory and showtimes reports
16. admin can create user
17. admin can set status of user (active/inactive)
18. admin can define is user is admin or regular
19. customer can purchase movie