

# Project ideas for Bootcamp

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# 1 Texas Hold'em online server

Create a game server for No Limit Texas Hold'em.

Minimum viable functionality:

1. Player joins table.
2. Server starts game.
3. Player performs actions (bet, call, raise, fold, check).
4. Server processes actions, deals cards, informs players at table about cards.
5. Server calculates winnings, informs players about game outcome and winnings.
6. Player leaves table.

Optional functionality for extra challenge (or just thoughts where the project can be eventually taken):

1. "Lobby" - multiple tables available, player can choose which one to join, possibly join multiple ones in parallel,
2. Client UI (possibly using Scala JS).
3. Player registration and wallet functionality with deposits & withdrawals.
4. "Artificial Intelligence" bots who play automatically so that a single player can play the game.
5. Support other similar games - Limit Texas Hold'em, Pot Limit Omaha Hold'em, etc.
6. Scalability & persistence - the server going down mid-game doesn't mean the games in progress are lost.

## 2 Photo Albums

Create a photo sharing site with albums functionality.

Minimum viable functionality:

1. Upload photo
2. Show uploaded photo
3. Show all uploaded photos
4. Delete uploaded photo

Optional functionality for extra challenge (or just thoughts where the project can be eventually taken):

1. Albums - ability to group related photos together. Many-to-many relationship between photos and albums.
2. Allow adding meta-data - title, description, location, etc.
3. Visibility - photos can be private or public. Guest passes.
4. Image file meta-data processing - extract EXIF, display, allow filtering by e.g. "Lens" or "Camera", geo-location, etc.
5. User registration & authentication, including using Google, Facebook, LinkedIn, etc.
6. Photos shown at different resolutions, thumbnails, rescaling, etc.
7. Object detection and image classification.

### 3 Telegram bot

Some Ideas:

- Tinder app (upload photo/just captions). Matching people, excluding already show and those who didn't like you.
- Learning english words. Adding words, changing frequency, asking random words. You may suggest some popular words based no other peoples vocabulary.
- Tic-tac-toe or some other game (waiting for first available partner/playing with server)
- Your idea :)

You can choose any scala/java libraries for telegram bots or none.

Nice example of telegram bot using functional streams: <https://github.com/vpavkin/telegram-bot-fs2> (may be outdated)

Nice example of telegram inline keyboards usage: <https://t.me/inlinegamesbot><sup>1</sup>

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<sup>1</sup> [https://t.me/inlinegamesbot?do=open\\_link](https://t.me/inlinegamesbot?do=open_link)

## 4 Vacation System

The system is intended for planning and managing the vacation schedule for an organization. Employees of this organization can be combined into teams (each person can be a member of one or more teams). The system validates this request and provides the ability to display all confirmed requests on the board.

### 4.1 Components:

Employee / team / organization / organization lead (~admin): store in a DB, CRUD via HTTP

Vacation entities: classic db or event sourced actor

Vacation Dashboard with real-time updates: updates via websockets

Vacation history list of a team with filters: via GET with uri params

### 4.2 Feature list:

Change the possible number of vacation days for all or for a specific employee (available only for the admin)

Each employee can send a request for vacation dates, change of dates or cancellation.

The system validates each request and confirms or rejects with a description of all errors (see validation rules below)

All changes of approved vacations in real time go to the board

Send a reminder one week before a vacation

Block specific dates for vacation (available only for the admin)

### 4.3 Vacation request validation:

Check the correctness and availability of days (suppose everyone has 30 days of vacation per year), min/max range, etc.

Take into account whether vacation include holidays

Check if the vacation intersects with another team member (suppose that no more than 20-50% of team members can be on vacation at the same time depending on the size of the team)

### 4.4 Architecture example

