

济动——同济大学线上运动社区

项目成员（按姓氏笔画排序）：杨梓浩，李航宇，郑柯凡，胡启云，曹峰源

1.项目目标

我们希望通过搭建一个校园线上运动社区，通过线上约球、个性化运动目标定制、在线互动等形式，激发大家的运动热情。

2.主要功能与项目特色

1. 约球与场地预定。认证为同济大学师生的用户可在平台上向其他用户发起约球信息（包括运动场地，预期运动时间等具体细节），接受信息的用户可选择是否接受。此外，用户可在约球成功后直接预约学校场地。
2. 个性化定制。用户可在平台上为自己设定具体的运动目标，平台也会根据用户设定的运动目标与用户信息进行个性化的运动定制。
3. 体育类社团管理。所有的运动类社团都可以在平台上申请线上社团管理的功能，申请后，社团相关负责人可在平台内发布活动通知，社团招新等信息。
4. 内容发布与交流。用户可在平台上发表运动相关的文章、视频等内容，也可以分享自己的运动心得等，其他用户也可以进行留言，评论。
5. 其他功能：排行榜功能，排名靠前的用户可获得一定奖励。提供有偿培训渠道，允许认证后的用户发布运动技能培训信息（如网球教练等）。

3.预期用户与关键目标

济动目前主要面向同济大学学生与教职工，用户可通过上传一卡通等资料进行认证。希望通过搭建线上运动社区，为师生运动提供更加便捷的方式，促进用户的运动交流，激发用户的运动热情，促进校园内的运动氛围。

4.同类产品

4.1同类产品与本产品的功能对比

各类平台	个性化定制	社区交流	运动场地预约	提供运动排行	针对小范围群体
Keep	✓	✓	×	✓	×
Nike Training Club	✓	✓	×	×	×
去动	✓	✓	×	✓	×
悦动圈	✓	✓	×	✓	×
济动	✓	✓	✓	✓	✓

4.2 具体分析与创新性

- 济动提供的私人运动目标定制功能和各大软件相似，平台可以为个人的运动喜好量身定做训练计划。此外，相比其他平台，济动可根据学生用户的所修体育课程安排有针对性地活动。
- 济动与其他社区类似，允许用户在社区交流模块中分享运动相关内容。但济动平台的内容会与校园生活联系更加密切。
- 济动能够提供相应的校园服务。相比于其他平台，济动能够提供校园内运动场地的预定的功能，此外，学校运动社团的管理能让社团更加贴近学生群体，让更多人爱上运动。
- 济动的运动排行榜功能是各大平台排行功能的一个改版，我们可以统计计算用户在某项运动中的能力值和排名，让运动更加具有动力。
- 济动是为校园定制的线上运动社区。在校园环境下约球、约跑等运动可以丰富师生的日常生活。此外济动还允许经认证之后的教师来指导训练（可有偿）。

5. 未来发展

我们计划，济动在同济大学的试运行成熟、平台的生态圈稳定后，加大对平台的投入和项目的迭代，逐步将整个项目辐射到上海市所有的高校，再进一步扩展到全国高校。

我的的最终目标是将济动打造全中国规模最大，生态圈最稳定，功能最完善的校园线上运动社区。连接不同的高校，打破多校之间体育交流的壁垒，开展多校的体育比赛，设立高校运动排行榜，使各高校形成良性竞争，促进中国高校体育的发展。

6. 开发中可能遇到的困难

1. 校内的场馆预约，社团管理模式需要得到学校支持。而我们开发者和学校负责体育方面的相关人士会存在一定理念上的不同，需要经过一段时间的洽谈。
2. 项目后续的研发可能需要资金的支持。
3. 平台的管理和安全性需要一定地技术支持，还需要技术人员的长期维护。

7. 相关技术

7.1 后端搭建

使用 `TypeScript` 在基于 `Node.js` 的 `nest.js` 框架上进行服务器开发。`Node.js` 是一个基于 `Chrome V8` 引擎的 `JavaScript` 运行环境开发平台，其上诞生了诸如 `koa2`、`express` 等优秀的传统框架，而 `nest.js` 又基于 `express` 进行了代码规范，具有良好的生态、较低的维护成本等优点。

7.2 数据处理

所有的网站相关信息将由基于 `MySQL` 的 `DBMS` 维护。`MySQL` 是一种关系型数据库管理系统，具有速度快、体积小、成本低、开源等优点。用户从浏览器入口通过统一资源定位符（`URL`）访问社区网站后，可以选择同济大学统一认证进行登录并确认身份，其账号信息（学号或工号）将由 `DBMS` 进行存储和维护。其他的网站资源如推送文章、个人排行榜以及预约信息都将由 `DBMS` 进行长期维护。

7.3 前端设计

主要选用 `CSS` 和 `JavaScript` 框架来对网页进行前端设计。`CSS` 是一种用来表现 `HTML` 等文件样式的计算机语言，其能够对网页中的各种元素进行精确的排版，拥有对网页对象和模型高效的编辑能力。另外，`vue.js` 是一套优秀的用于构建用户界面的渐进式 `JavaScript` 框架，其具有易用、灵活、性能好等特点，还便于和第三方库或已有项目进行整合，丰富我们的社区界面。

8. 收获成长

这个项目的实施，除了能搭建一个全新的校园社区，方便学生的日常生活外，对于我们团队整体的成长也是不言而喻的。

8.1 技术成长

在技术方面我们分为服务器端与网页端，服务器端使用了 `nest.js` 框架，并且利用 `MySQL` 对数据库进行管理；网页端使用了 `css` 与 `JavaScript` 来进行网页的设计。这些很多知识对于我们现在来说都是相对陌生的，但未来随着项目的逐步深入搭建，我们必然会在项目的实施中逐步提升自己的代码能力，对服务器端与网页端的环境更为熟悉。

8.2 团队合作

一个项目的进展不是靠一个成员单打独斗可以实现的，但也同样不是众人盲目地写代码能够做好的。在项目具体实施的过程中，我们需要团结协作，细致分工。在项目的进程中合理安排人员与时间，达到效率的最大化，这都是我们能够在项目的实施中真实学习到的。

(英文版见下)

JiDong

——Online Sports Community of Tongji University

Members of the project (sort by last name strokes)：杨梓浩，李航宇，郑柯凡，胡启云，曹峰源

1. Project Objectives

We hope that by building an online sports community on campus, we can stimulate everyone's enthusiasm for sports through online appointments, personalized sports goal customization, and online interaction.

2. Main Functions and Project Features

1. Contact friends and reserve courts. Users who are certified as teachers and students of Tongji University can initiate ball appointment information (including specific details such as sports venues, expected sports time, etc.) to other users on the platform, and users who receive the information can choose whether to accept it. In addition, users can directly reserve the school venue after the appointment is successful.
2. Personalized customization. Users can set specific exercise goals for themselves on the platform, and the platform will also provide personalized exercise customization based on the exercise goals set by the user and user information.
3. Sports club management. All sports clubs can apply for the function of online club management on the platform. After applying, the relevant person in charge of the club can post activity notices and recruit new members on the platform.
4. Content publishing and communication. Users can post sports-related articles, videos and other content on the platform, and can also share their own sports experience, and other users can also leave messages and comments.
5. Other functions: Ranking function, users with the highest rankings can get certain rewards. Provide paid training channels to allow certified users to post information on sports skills training (such as tennis coaches, etc.).

3. Expected Users and Key Goals

JiDong is currently mainly for students, faculty and staff of Tongji University. Users can upload all-in-one cards and other materials for authentication. It is hoped that by building an online sports community, it will provide a more convenient way for teachers and students to exercise, promote users' sports communication, stimulate users' sports enthusiasm, and promote the sports atmosphere on campus.

4. Similar Products

4.1 Function Comparison between Similar Products and Our Product

Platforms	Personalized Customization	Community Communication	Stadium Reservation	Ranking	For Campus
Keep	✓	✓	×	✓	×
Nike Training Club	✓	✓	×	×	×
去动	✓	✓	×	✓	×
悦动圈	✓	✓	×	✓	×
JiDong	✓	✓	✓	✓	✓

4.2 Specific Analysis and Innovation

- The private sports goal customization function provided by JiDong is similar to that of major software, and the platform can tailor training plans for personal sports preferences. In addition, compared to other platforms, JiDong can arrange targeted activities according to the physical education courses taken by student users.
- JiDong is similar to other communities, allowing users to share sports-related content in the community communication module. But the content of JiDong platform will be more closely related to campus life.
- JiDong is able to provide corresponding campus services. Compared with other platforms, JiDong can provide scheduled functions of sports venues on campus. In addition, the management of school sports clubs allows the clubs to be closer to the student population and allow more people to fall in love with sports.
- JiDong's sports ranking function is a revised version of the ranking functions of major platforms. We can calculate the user's ability value and ranking in a certain sport to make the users more motivated.
- JiDong is an online sports community customized for campus. In the campus environment, games such as ball appointments and running appointments can enrich the daily lives of teachers and students. In addition, JiDong also allows certified teachers to guide the training (can be paid).

5. Future Development

We plan to increase the investment in the platform and the iteration of the project after the trial operation of Tongji University is mature and the ecosystem of the platform is stable, so that the entire project will be gradually radiated to all universities in Shanghai, and then further expanded to universities across the country.

Our ultimate goal is to build JiDong into the largest online sports community in China with the most stable ecosystem and the most complete functions. Connect different colleges and universities, break the barriers of sports exchanges between multiple schools, launch multi-school sports competitions, set up college sports rankings, so that colleges and universities form healthy competition, and promote the development of college sports in China.

6. Potential Difficulties in Development

1. Reservations for venues in the school, community management mode need to be supported by the school. However, there will be certain conceptual differences between our developers and those in the school responsible for sports, and it will take some time to negotiate.
2. Subsequent research and development of the project may require financial support.

3. The management and security of the platform require certain technical support and long-term maintenance by technical personnel.

7. Related Technology

7.1 Construction

Use `TypeScript` for server development on the `nest.js` framework based on `Node.js`. `Node.js` is a `JavaScript` runtime environment development platform based on Chrome V8 engine, on which excellent traditional frameworks such as `koa2` and `express` were born, and `nest.js` is based on `express`. It has the advantages of good ecology and low maintenance cost.

7.2 Data Processing

All website related information will be maintained by DBMS based on `MySQL`. `MySQL` is a relational database management system that has the advantages of fast speed, small size, low cost, and open source. After the user accesses the community website through the uniform resource locator (URL) from the browser entrance, he can choose the unified authentication of Tongji University to log in and confirm his identity. The account information (student number and password) will be stored and maintained by the DBMS. Other website resources such as push articles, personal rankings and appointment information will be maintained by the DBMS for a long time.

7.3 Design

Mainly use `CSS` and `JavaScript` frameworks for front-end design of web pages. `CSS` is a computer language used to express HTML and other file styles. It can accurately typeset various elements in web pages and has the ability to edit web objects and models efficiently. In addition, `vue.js` is an excellent progressive `JavaScript` framework for building user interfaces. It is easy to use, flexible, and has good performance. It is also easy to integrate with third-party libraries or existing projects. So as to enrich our community interface.

8. Harvest

The implementation of this project, in addition to building a brand new campus community and facilitating the daily life of students, is also self-evident for the overall growth of our team.

8.1 Technology Growth

In terms of technology, we are divided into server-side and web-side. The server-side uses the `nest.js` framework and uses `MySQL` to manage the database; the web-side uses `CSS` and `JavaScript` to design web pages. A lot of this knowledge is relatively unfamiliar to us now, but in the future, as the project is gradually deepened, we will inevitably gradually improve our coding capabilities during the implementation of the project and become more familiar with the server-side and web-side environments.

8.2 Teamwork

The progress of a project cannot be achieved by one member alone, but it is also not something that everyone can blindly write code to do well. In the process of the concrete implementation of the project, we need to unite and cooperate and divide the labor carefully. Reasonably arrange personnel and time in the process of the project to maximize efficiency. This is what we can learn from the implementation of the project.