



AKDENİZ UNIVERSITY
COMPUTER ENGINEERING

optime

SENIOR PROJECT
REPORT 3

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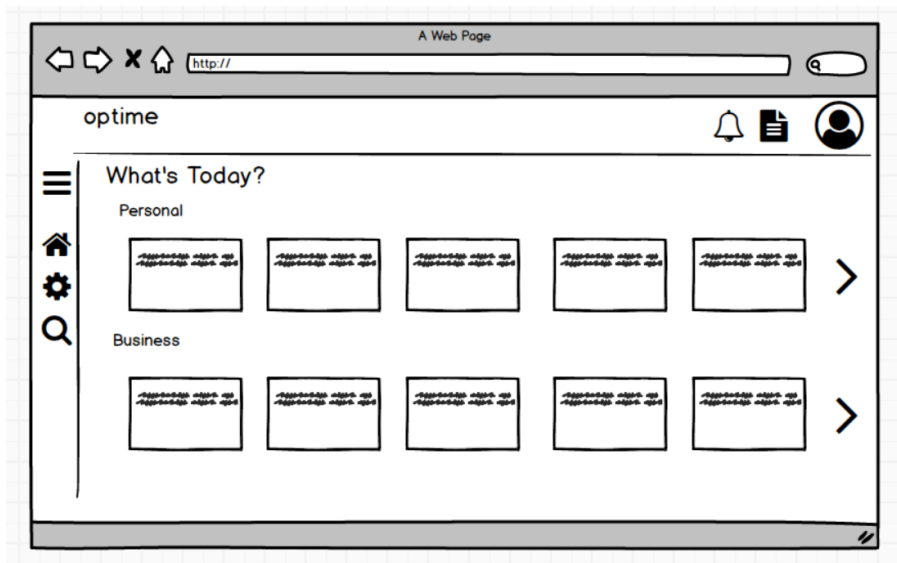
1. INTRODUCTION

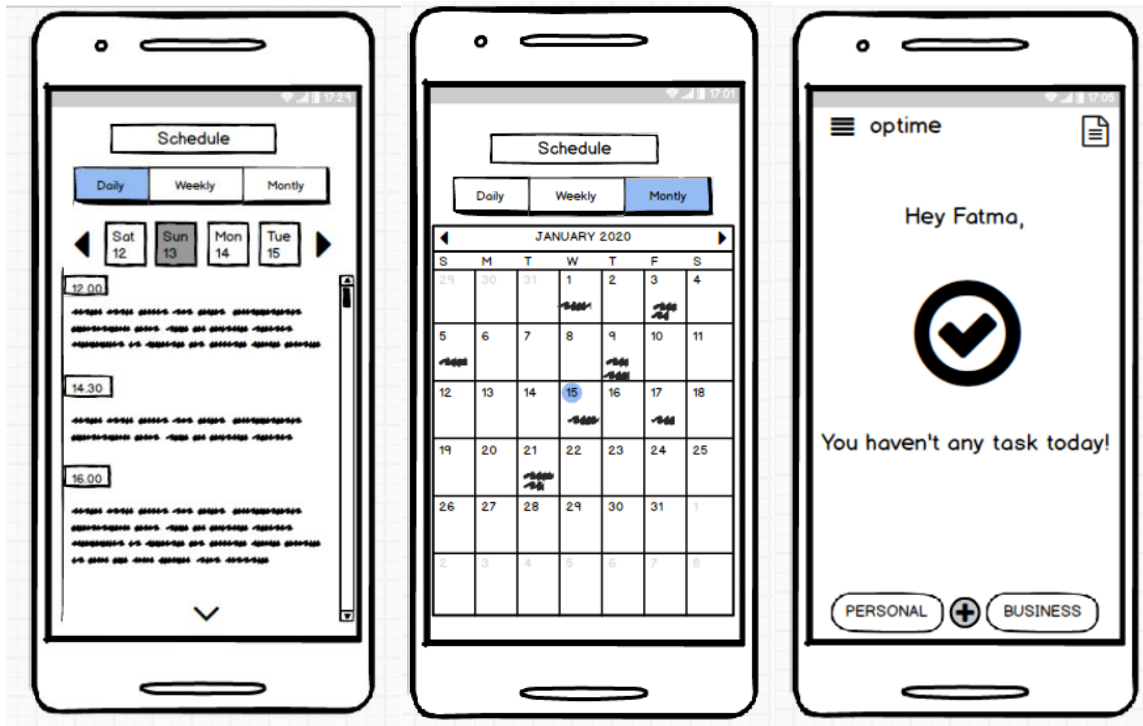
In the final project of the bachelor's coursework, I decided to implement an application on time management. It will have a time scheduler for projects and personal affairs. Currently, people use project management systems to organize their business and some applications to manage their activities like a calendar. Many applications will be used to manage time. However, it has yet to develop a personal assistant aspect to gather all systems. Although clients have used time to-do applications to plan their time, they have used it with no real consistent approach. The development of a time management project will improve the optimization of time. In addition to the management of the project, the application will be used to plan free times.

I want to clarify why I choose to develop a time management project. Nowadays, it is hard to schedule a project or a day. There are a lot of applications, however; none of them can organize the daily planning according to the time by minimizing the waste of time. The popularity of project management applications grows every second. It fascinated me. Then I wondered why those applications do not organize the time.

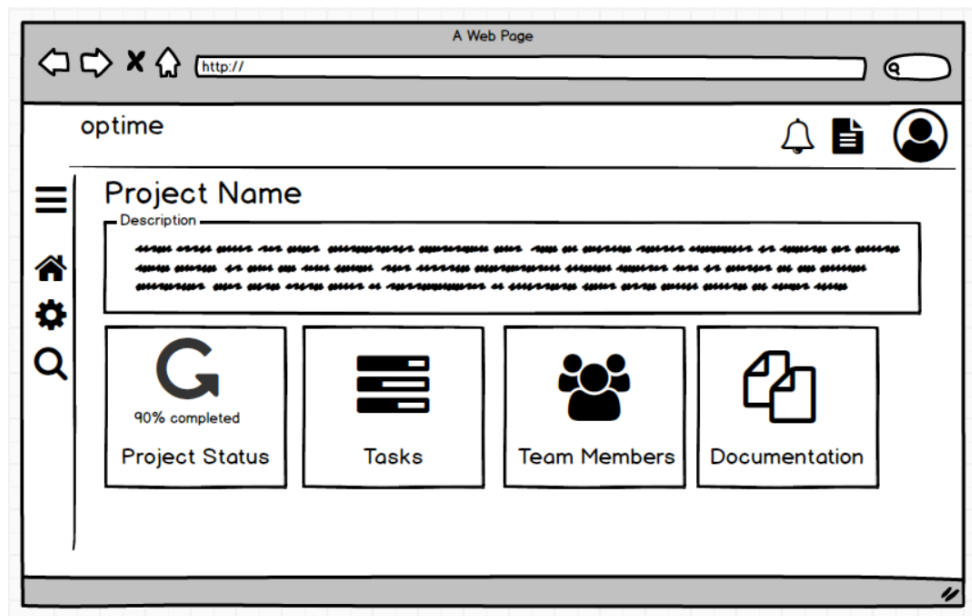
1.1 Description

Task management software has become wildly popular nowadays, which means there are plenty of options to choose from. Whether looking for a simple way to organize tasks or a powerful enterprise-grade system, there is a task management tool everywhere. However, most of them are just for project management. Optime is an online schedule management application for android and web-based. In more detail, users can create tasks by assigning due time. The application's main features will be planning tasks as well as planning a project. The user will also identify the priority of the task and the plan of the day will be changed depending on it. To detail, a task user can add images that increase visual quality. They also are free to create a repeated task which means it can be located in a plan every day. Optime is an application to help to organize time optimally. This management application provides users to schedule their time and manage business projects with two parts. There are many fundamental properties of the application, but the most important feature is the intelligent schedule generation.





The most important feature can make a private work schedule for users. For instance, Optime can be a guide for a student who prepares for an exam. This schedule arranges the period of a working plan by determining break depending on user requests that are also known as pomodoro technique. Working 40 minutes and giving a break 10 minutes, and after again working 40 minutes that can be an example of the work schedule on our application. Like the others, this is also reminded by notifications and alarm. Besides, Optime makes the general productivity analysis of the user depending on completed tasks. For example, a user completes half of the tasks in a day and the analysis says to the user that the productivity is 50% in the day. In this way, Optime aims to increase the productivity of time.



Besides, users can organize their business like project management. Business professionals rely on project management software to help them oversee multiple endeavors. Companies can conveniently mitigate risk by identifying the failing aspects of a project using time tracking that estimated time of completion for each stage of the project. This part is used for project planning, scheduling, and management. It provides managers to control developers, to control project costs and budgeting, to check the quality of development, documentation, resource planning, time tracking, and many more. It is also used for collaboration between team members.

1.2 Audience

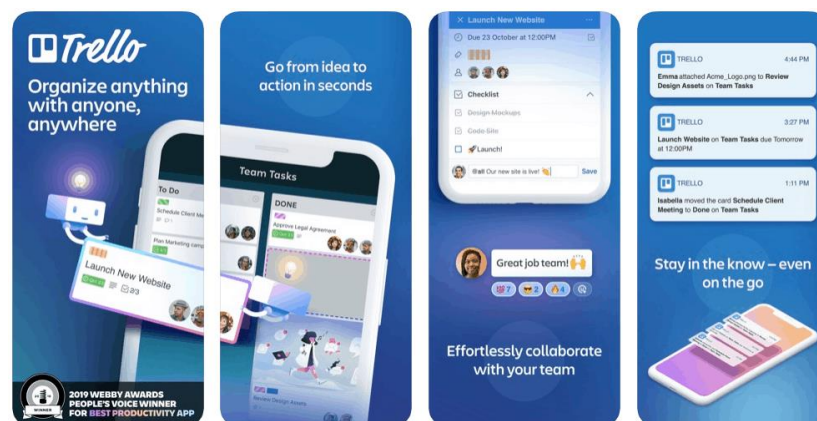
Who is the general audience the application to reach? This application can be used both as personal and as teamwork. Using the application, everybody can easily program their daily routines, so they can save the time and do their works efficiently. At the same time, it generally appeals to people of all ages. Especially, the main audiences are students and IT professionals.

1.3 Similar Products and Differences

1.3.1 Trello

The first similar application is Trello which is the project management tools. It can be used to organize project, project steps and organize works. The most known feature of the application is to create tasks containing images, attachments, lists. Another property is to drag and drop tasks onto other task list.

Trello has some pros and cons. The first good thing is that Trello has drag and drop tasks onto another task list. So, it has simple user interface. Another advantage is there are many extensions for Trello as scrum. Trello also provides to create several boards for various projects. On the other side, Trello has some disadvantages. It has a mobile version but drag and drop is so difficult. In addition, Trello can only be used online.

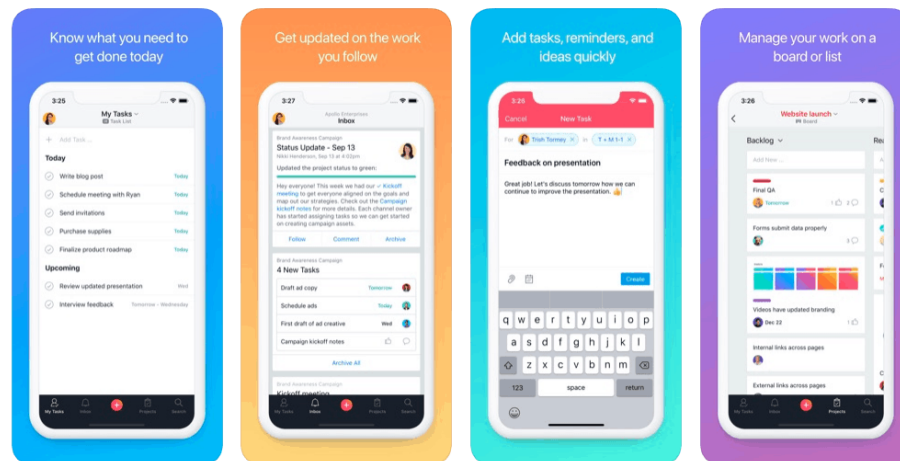


1.3.2 Asana

Another alike project is Asana that is the project management application which is easy to use. With Asana, everyone creates task list and share it with a team. However, there are many elements in the application

which makes the application complicated. It also supplies an opportunity to create a timeline with tasks' deadlines.

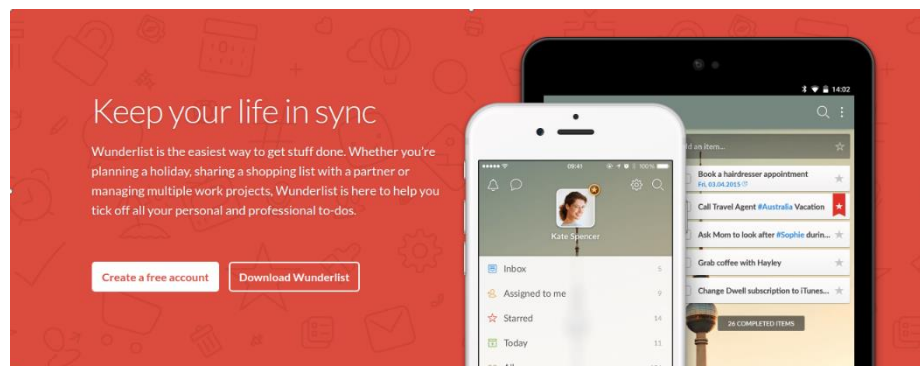
Asana helps the user to create and share tasks. First advantage of Asana is simple and give an opportunity with lots of integrations. Teams with maximum 15 members can use Asana for free. Another good thing of Asana is multi-device syncing. On the other hand, Asana has some disadvantages. If a team with more than 15 members, Asana will not be free. Another disadvantage is that Asana sends lots of email beside notifications.



1.3.3 WunderList

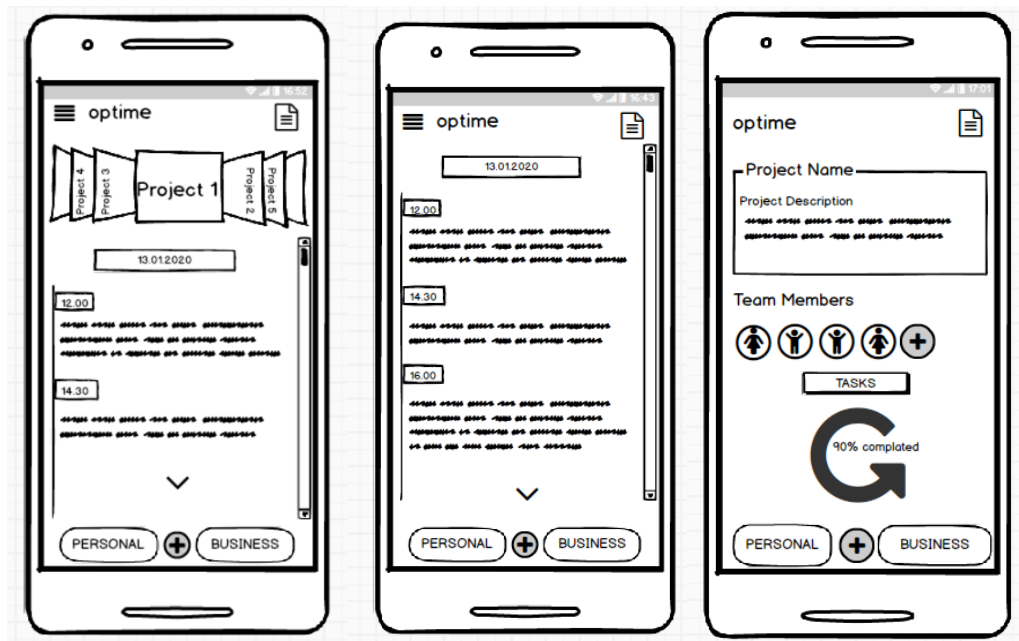
Next application which is similar to optime is named Wunderlist. It is a tool that makes planning free times and managing projects easily. It organizes and shares personal to-do list easily. User can determine due dates of tasks and Wunderlist has a reminder to send notification to user.

WunderList has advantages and disadvantages. An advantage of WunderList is integration with other applications. Another good is that WunderList has tasks and subtasks inside of it. It also allows users to organize their days. On the other hand, it has some disadvantages. The most important disadvantage is that it difficult to create tasks in mobile application. Another one is no date/time interpretation.



1.3.4 Optime

Optime provides to manage team projects with its intelligent user interface easily. It will be used to organize project, create teams, schedule project steps. In addition to this, project has a personal part which will be used to plan personal activities as reading a book, learning a new programming language. There are many differences from other applications. The first and most importance one is the schedule tasks. The application shuffle all the tasks automatically and it plans user's day or week programmatically. Thus, it optimizes user's time. Another significant feature is that the application contains project management part and personal management part at the same time. Thus, it aims to manage user's daily works and its job. In addition to those advantages, it divides big tasks to small tasks. It also has reminders for tasks which help users to realize time of tasks.



1.4 Goal of the Project

There are various goals of project,

- help users to optimize their time with minimum loss,
- provide convenience to users with scheduling daily, weekly plan,
- give opportunity to manage projects,
- make it fast to add tasks and organize them quickly,
- remind user about task deadlines,
- offer simple and clean user interface,
- synchronize teamwork with other members on the project,

1.5 Platforms to Run

Optime will be the application that aim to reach maximum number of users. For this reason, it will run on Android because Android is the most popular mobile operating system in the world, there are 2,5 billion

active Android devices. On the other side, optime will be a web-based application because of that to reach the rest of the people who don't use Android.

2. CONSTRAINTS

2.1 Implementation constraints

- To build this application, there must be a platform for mobile application development. Microsoft's Xamarin technology will be used to develop which is in Visual Studio. It is possible to develop a native application with Xamarin, so it is no more necessary to learn Java for Android devices or Swift for iOS devices. To develop mobile application with Xamarin C# programming language will be used.
- Programming language which will be used in the project is C# (To develop mobile application -for Android- with Xamarin C# programming language will be used as shown in the first item).
- Some UI designs are taken as an example from dribbble and pinterest.
- Test tools are used to improve the application.
- Microsoft SQL Server will be used to design database which is a relational database management system that is developed by Microsoft. It can run on the same computer or on another computer across a network. From this approach, it provides developers to run in synchronism. In addition, SQL Server keep 4.1 billion records.
- Object Oriented Programming will be pursued for optime to adaptive application.
- Some libraries will be used for development which are located in Nuget Package Manager.
- Azure DevOps will be used for version control, reporting, requirements management, project management, testing and release management.
- Visual Studio 2019 that is an integrated development environment from Microsoft will be used. The reason behind is that countless documentation exists on the internet. In addition to that, websites, web services and mobile applications can be developed simultaneously with different layers. It also supports HTML, CSS, JS and C# at the same time.
- .Net Core framework will be used because it supports cross platform development. If it is decided to develop project for Linux Operating System, .Net Core will be the best option which was built by Microsoft. In addition, .Net Core is open source for data access technology.

2.2 Economic constraints

- Optime will be published in Google Play Store to be downloadable by clients that uses Android devices. Google Play Store has one time \$25 registration fee.
- The IDE and libraries are free.
- The server will be rented that contains data. All options will be analyzed to gain better profit.
- Clients should have Android devices or computers in order to use it because optime will be implemented for Android and Web.
- Cost of usable API services will be considered if any occurs.

2.3 Sustainability constraints

- Logs, feedbacks and comments will be collected via application to improve features of software.
- According the feedbacks and logs, system will be updated regularly.

2.4 Social constraints

- Optime will provide to share project tasks with team members. This way, the main goal that developers show others implementation progress and improve their own progress.

2.5 Language constraints

- The language of optime will be English.

2.6 Data constraints

- To test and train the application, some example data will be used for better progress.
- All data coming from the user will be protected in private database.

3. PROFESSIONAL AND ETHICAL ISSUES

3.1 Professional Issues

- Agile-Scrum development is adopted.
- The source code of optime will be shared in github.
- The project will be tested by a user weekly. This will help to find if any errors occur.

3.2 Ethical Issues

- Security is the major concern in the project. Project documents and tasks will not be shared with anybody else. Only team members can reach the project.
- Data of users will be used only improve the application. Users' personal data will not be shared with third parties.
- Minimum amount of information will be asked to client respect to privacy.
- Any advertisement will not be displayed for financial means.

4. REQUIREMENTS

4.1 Functional Requirements

In project management part, users should be able to

- reach information that belonging to the project as documentation which includes reports,
- provide to create project,
- share tasks with other users or team members,
- assign tasks to anyone else in the project team,
- shuffle tasks depending on deadlines and priorities,
- give a break between tasks according to the pleasure of user,
- take note to any task,
- give report of productivity analysis at the end of the week,
- change color of the task depending on priority.

In personal time management part, users should be able to

- divide big task to small tasks,
- define free times which is out of the working time for designing personal time,
- remind things that are not done for a long while,
- control repeating tasks,

- take note to any task,
- shuffle tasks depending on priorities,
- give a break between tasks according to the pleasure of user,
- change color of the task depending on priority,
- determine if task reduplicate.

4.2 Non-functional Requirements

4.2.1 Usability

- The system will be usable by students, businessmen, academicians, some companies, all ages and various groups of people. Because of that, it will be well organized in such a way that user errors are minimized.
- Any user can use the system after a minute of training.
- Optime will have a user-friendly and simple user-interface for all of potential user types.

4.2.2 Reliability

- System can handle many numbers of usage at the same time.
- Optime will run without a failure. It needs to be stable.

4.2.3 Security

- The application needs to secure user information from threats.
- Private data stored in the application will be encrypted that it cannot expose data in case of a cyber-attack.

4.2.4 Performance

- The system will have three main performance requirements which are response time, workload, and platform.
- Load time of the application should be low. Most of the response times will at most 0.2 seconds. Some features like upload a photo to a task may have longer response time like bigger than 5 seconds. In this situation, small feedback may be necessary. Response time can depend on users' internet connection status.
- Workload may vary to the system's server status which depend on the chosen system server and system's capability of supporting customers.
- The database should be optimized so that users can quickly and easily look for the information they can access.

4.2.5 Extensibility

- The application will be easy to maintain.
- It is available on multiple platform as mobile and web.
- To improve and modify the application, data examples will be extendable.

4.2.6 Portability

- Any device with android operating system will be able to run optime.
- It is also available on web. Users can reach it from any browser.

- The system can be updatable to add new feature changes.

4.2.7 Accessibility

- The application is designed for all kind of users who has android device or a computer. Optime has a small documentation tutorial about how to use it with visuals. Clients will be able to use application with any problem as complex information.
- Optime will be free to download by anyone in Google Play Store for mobile version.

5. MASTER FEATURE LIST

# of MF	Status	Details
MF 1	Completed	Doing a feasibility study to define possible problems and identify if the project is useful.
MF 2	Completed	Observing similar applications and using that information to design optime. (research and development)
MF 3	Completed	To define requirements and conditions depending on users' needs. (requirement analysis)
MF 4	Completed	Designing a flow diagram to show system requirements graphically.
MF 5	Completed	To define business processes to manage the project professionally.
MF 6	Completed	To complete project development steps to begin implementation.
MF 7	In progress	To generate database tables in MSSQL Server.
MF 8	In progress	Defining relationships between tables.
MF 9	In progress	Development of Stored Procedure, View and Function in MSSQL Server.
MF 10	In progress	Identifying information architecture to make the project more understandable.
MF 11	In progress	Drawing wireframes to specify the basic steps of the project.
MF 12	In progress	Interaction design to create the project that enables user to achieve objectives. It tends to be an application.
MF 13	In progress	Defining a web template to begin generating the website.
MF 14	In progress	Identifying a mobile template to start generating the mobile application.
MF 15	New	To complete templates with images and contents.
MF 16	New	Process of architectural design and preparing documentation.
MF 17	New	Implementation of project layers in Visual Studio IDE.

MF 18	New	Development of services.
MF 19	New	Implementation of the web admin panel to control project performance, security, bugs.
MF 20	New	Development of user interfaces.
MF 21	New	Coding XAML to build mobile design.
MF 22	New	Development of mobile user interfaces.
MF 23	New	Implementation of Android application with Xamarin.
MF 24	New	Testing database tables of the project.
MF 25	New	Testing architecture design.
MF 26	New	Interface tests that contain responsiveness.
MF 27	New	Tests of performance and security.
MF 28	New	Mobile application tests.
MF 29	New	Wearer tests of the project.
MF 30	New	Publishing the application in Google Play Store.
MF 31	New	To control cross-platform interaction.
MF 32	New	Evaluating feedbacks and logs of the project.
MF 33	New	Reporting activities.
MF 34	New	Completing the project processes.

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