Human Evaluation on DALLE

This form is intended to evaluate the quality of the results produced by DALLE, an LLM-based assistant designed to extract microservice-based architecture designs from textual input.

Overview of the Evaluation
You will be asked to evaluate *4 different projects*. Each project includes:

- A *brief description* of the system to be generated
- A set of *user stories* related to the system

These inputs are provided to the DALLE system, which then produces an architectural design. Among others outputs, DALLE identifies:

- The **list of microservices**
- The **microservice and communication patterns** (based on the reference [book](#))

Evaluation Process
For each project, you will be presented with:

- The original *system description* and *user stories*;
- A visual representation of the architecture generated by DALLE, including microservice patterns.

You are asked to evaluate whether the identified **data and communication style patterns** are appropriate and consistent with the project requirements.

Each evaluation question uses a **Likert scale from 1 to 7**, where:

- 1 = Strongly Disagree
- 7 = Strongly Agree

You may also provide **additional comments or observations** for each project in the dedicated Observation section.

Reference Patterns
The evaluation is based on the following architecture design patterns (as defined in the reference [book](#)):
Communication Style Patterns:

- Shared Database
- Database per Service

Data Style Patterns:

- API Composition
- CQRS
- Saga
- Aggregate
- Event Sourcing
- Domain Event

<u>Final Questions</u>
At the end of the form, you will find a few general questions about the perceived utility and effectiveness of DALLE as a tool for architectural design support.

* Indicates required question

1. Rate your confidence in designing systems based on microservices architectures: *

1	2	3	4	5
☆	☆	☆	☆	☆

2. How many years of experience do you have? *

_____

3. What is your age? *

_____

4. In what gender do you identify yourself? *

Mark only one oval.

◯ Male

◯ Female

◯ Prefer not to say

5. Have you ever evaluated systems' architectures? *

   Mark only one oval.

   ◯ Yes

   ◯ No

6. Describe your role in the SE field *

   Mark only one oval.

   ◯ Practitioner

   ◯ Academic

RecipeCove

SYSTEM DESCRIPTION:
The RecipeCove project consists of a web application about recipes, food and cooking.
The main goal is to provide an easy-to-use tool to aid in recipe discovering, bookmarking as well as finding exhaustive information about recipes and ingredients.
The central focus of the system is therefore the discovery of a wide range of recipes, through the use of a search bar, or with the use of a Chat-BOT which will suggest recipes to the user, following a specific diet.
Additionally, the user has the ability to keep a personal profile within the system, which will allow him to see his basic information, but also the ability to save recipes in a favorite list and publish reminders in an application-created calendar.

USER STORIES:
1) As a visitor, I want to be able to register in the website with an external account, so that I can use an existing Google account
2) As a visitor, I want to be able to search a recipe by its name, so that I can search only what interests me
3) As a visitor, I want to be able to see the information of a recipe, so that I can learn more about it
4) As a visitor, I want to be able to see the information of an ingredient, so that I can know the details of each ingredient in a recipe
5) As a visitor, I want to be able to check the suggested recipes for a specific diet, so that I can be inspired in what to prepare each day
6) As a registered user, I want to be able to perform the login, so that I can access other system's functionalities
7) As a registered user, I want to be able to perform the logout, so that I can leave my information within the website
8) As a registered user, I want to be able to access my profile page, so that I can check my personal information
9) As a registered user, I want to be able to create a Calendar, so that I can populate it with events relating recipes
10) As a registered user, I want to be able to delete a Calendar, so that I can remove the data gathered within the website
11) As a registered user, I want to be able to add an event to my Calendar, so that I can be reminded on a specific day to prepare a particular recipe
12) As a registered user, I want to be able to add a recipe to my favorite list, so that I can keep track of all the recipes I like
 13) As a registered user, I want to be able to remove a recipe from my favorite list, so that I can stop being interested in it
14) As a registered user, I want to be able to see my favorite list, so that I can check my current interests in recipes

Microservices

name	description
Authentication Service	Handles user registration, login, logout, and external account integration such as Google account authentication.
Recipe Search Service	Provides functionality to search recipes by name and retrieve detailed information about recipes.
Ingredient Information Service	Manages retrieval and display of detailed information about ingredients used in recipes.
Dietary Recommendation Service	Suggests recipes based on specific diets using a Chat-BOT or other recommendation mechanisms.
User Profile Service	Manages user profile data including personal information and access to profile pages.
Calendar Management Service	Allows users to create, delete, and manage calendars and events related to recipes for reminders.
Favorites Management Service	Enables users to add, remove, and view recipes in their favorite list.

Patterns

group_name	implementation_pattern	involved_microservices	explaination
Data Query and Composition	API Composition	Recipe Search Service,Ingredient Information Service	Compose data from multiple services via APIs without tight coupling for efficient querying.
User Profile Management	Database per Service	User Profile Service	Maintain independent data management for user profiles with loose coupling.
Calendar and Favorites Management	Saga	Calendar Management Service,Favorites Management Service	Handle operations spanning multiple services or requiring eventual consistency for data updates.

7 point likert scale

1. Strongly disagree
2. Disagree
3. Somehow disagree
4. Neither agree nor disagree
5. Somehow agree
6. Agree
7. Strongly agree

7. Is the division in microservice correct with respect to the context and *
    the user stories?

	1	2	3	4	5	6	7
	☆	☆	☆	☆	☆	☆	☆

8. Is **API Composition Pattern** correctly applied? *

	1	2	3	4	5	6	7
	☆	☆	☆	☆	☆	☆	☆

9. Is **Saga Pattern** correctly applied? *

	1	2	3	4	5	6	7
	☆	☆	☆	☆	☆	☆	☆

10. Is **Database per Service Pattern** correctly applied? *

	1	2	3	4	5	6	7
	☆	☆	☆	☆	☆	☆	☆

11. Observations

RentYourExpert

SYSTEM DESCRIPTION:
RentYourExpert is a platform that connects individuals who require expert services with skilled professionals across various fields. Its main features are :
- User-friendly Interface: The app is designed to be easy to navigate, allowing users to quickly find the information they need.
- Search Functionality: Users can search for workers based on their skills and location.
- Secure User Authentication and Authorization: Robust measures ensure the security of user access.
- Worker Reviews: The platform displays worker reviews, helping clients make informed decisions when hiring a worker.
- Efficient Communication: A built-in Q&A system makes it easy for both parties to discuss project requirements and expectations.
- Easy-to-Use Profile Management: Workers can efficiently manage their profiles, projects, and communication with clients through an intuitive interface.

USER STORIES:
1) As a customer, I want to be able to register, so that I can have an account
 2) As a customer, I want to be able to login, so that I can start using the app
3) As a customer, I want to be able to have access to my profile, so that I can look at my informations
4) As a customer, I want to be able to have access to the catalogue, so that I can see all available workers
5) As a customer, I want to be able to have access to the page of each single worker, so that I can have all informations related to him
6) As a customer, I want to be able send a request to a worker, so that I can rent his expertise
7) As a customer, I want to be able to a list of requests in my profile page, so that I can see all the requests that I did
8) As a customer, I want to have a specific button attached to my request, so that I can delete it
9) As a customer, I want to be able to see the questions made by other customers to a specific worker, so that I can have other informations related to him
10) As a customer, I want to be able to have a field of text in the worker's page, in order to be able to send questions to the expert
11) As a customer, I want to be able to leave a review, in order to evaluate the performance that I received
12) As a customer, I want to have specific buttons attached to the review that I posted, in order to update or delete it.
13) As a customer, I want to have a specific button in the pages of the application, that allow me to logout
14) As an admin, I want to be able to login, so that I can start the management of the e-commerce
15) As an admin, I want to be able to access to the customers list, so that I can see all the customers
16) As an admin, I want to have an add customer Button, so that I can generate new customers

17) As an admin, I want to be able to access to the profile page of each single customer, so that I can have informations related to that specific customer

18) As an admin, I want to have a delete customer button, so that I can delete that customer

19) As an admin, I want to be able to access to the workers list, so that I can see all the workers

20) As an admin, I want to be able to access to the profile page of each single worker, so that I can have informations related to that specific worker

21) As an admin, I want to be able to access to the requests page, so that I can see each request done so far

22) As an admin, I want to be able to add or delete a request, in order to be able to handle them

23) As a worker, I want to have a requests page, so that I can look at all my requests

24) As a worker, I want to manage requests, in order to be able to accept or reject them

25) As a worker, I want to be able to register, so that I can have an account

26) As a worker, I want to be able to login, so that I can start using the app

27) As a worker, I want to be able to have access to my profile, so that I can look at my informations

28) As a worker, I want to be able to modify my informations

29) As an admin, I want to have an add worker Button, so that I can generate new workers

30) As an admin, I want to have a delete worker Button, so that I can delete that worker

31) As an admin, I want to be able to delete a review, in order to be able to handle them

32) As a customer, I want to be able to modify my informations

33) As a worker, I want to be able to answer to the questions made by the customers to me

34) As an admin, I want to be able to delete a question with his relative answers, in order to be able to handle them

35) As a customer, I want access to a worker's review section, so that I can read reviews left by other customers about the worker

Microservices

name	description
Authentication Service	Handles user registration, login, logout, and secure authentication and authorization for customers, workers, and admins.
User Profile Service	Manages user profile data for customers and workers, including viewing and updating personal information.
Worker Catalogue Service	Provides search and browsing functionality for workers based on skills and location, and displays detailed worker profiles.
Request Management Service	Manages creation, listing, updating, acceptance/rejection, and deletion of service requests between customers and workers.
Review Service	Handles creation, viewing, updating, and deletion of worker reviews by customers and admins.
Q&A Communication Service	Manages questions and answers between customers and workers, including posting, viewing, answering, and admin moderation.
Admin Management Service	Provides administrative capabilities to manage customers, workers, requests, reviews, and questions, including adding and deleting users and content.

Patterns

group_name	implementation_pattern	involved_microservices	explaination
User Profile Management	Database per Service	User Profile Service	Maintain user profile data independently for loose coupling.
Worker Catalogue Management	API Composition	Worker Catalogue Service	Aggregate data from multiple services for worker profiles.
Request Handling	Saga	Request Management Service	Manage distributed transactions across services for request updates.
Review Management	Database per Service	Review Service	Isolate review data for efficient querying.

7 point likert scale

1. Strongly disagree
2. Disagree
3. Somehow disagree
4. Neither agree nor disagree
5. Somehow agree
6. Agree
7. Strongly agree

12. Is the division in microservice correct with respect to the context and *
    the user stories?

1	2	3	4	5	6	7
☆	☆	☆	☆	☆	☆	☆

13. Is **Saga Pattern** correctly applied? *

1	2	3	4	5	6	7
☆	☆	☆	☆	☆	☆	☆

14. Is **Database per Service Pattern** correctly applied? *

1	2	3	4	5	6	7
☆	☆	☆	☆	☆	☆	☆

15. Is **API Composition Pattern** correctly applied? *

	1	2	3	4	5	6	7
	☆	☆	☆	☆	☆	☆	☆

16. Observations

Teamify

SYSTEM DESCRIPTION:
Teamify is a versatile software solution designed to simplify personal task management and promoved group collaboration.
With intuitive task management, shared events, real-time chat, survey creation, and more.
Teamify empowers both individuals and teams to work efficiently and effectively
Main Goals:
- Task Management
    Create and manage personal and shared tasks
- Team Management
    Create teams and invite members to join
- Real-time notifications
    Save time with real-time notifications
- Real-time chat
    Chat in real-time with your colleagues

USER STORIES:
1) As a user, I want to create an account, so that I can use the application.
2) As a user, I want to login into the application, so that I can have access to my personal account within the application.
3) As a user, I want to logout from the application, so that I can leave the system without keeping my access credentials into the system.
4) As a user, I want to visualize my personal information, so that I can check whether they are correct or not.
5) As a user, I want to modify my personal information, so that I can change my password or whatever other information that is not correct at any time.
6) As a user, I want to reset my password, so that I can login into the system even if I forget it.
7) As a user, I want to delete my account, so that my personal data will no longer be saved into the system.
8) As a user, I want to have access to the notification section, so that I can see all the notifications that have been sent to me.
9) As a user, I want to visualize my personal agenda, so that I can check at any time which are my personal tasks.
10) As a team member, I want to visualize the agenda that is shared between me and a specific team which I belong to, so that I can check at any time which are the events shared with that team.
11) As a user, I want to create a personal task, so that I can better organize my personal life.
12) As a user, I want to modify a personal task, so that I can adjust some incorrect things that I have specified before.
13) As a user, I want to delete a personal task, so that I can empty a time slot of my personal agenda.
14) As a user, I want to check a personal task for completion, so that I can see which are the remaining personal tasks to do and which are those that I have already completed.
15) As a user, I want to create a team, so that I can have a shared agenda with my colleagues.

16) As a user, I want to join an existing team, so that I can receive notifications about events from my colleagues.

17) As a user, I want to visualize the list of all the teams I have joined so far, so that I can see all their details.

18) As a team member, I want to leave a team which I belong to, so that I will receive no more notifications from people that are no longer my colleagues.

19) As a team administrator, I want to select other team members to be administrators as well, so that I can more easily manage the team.

20) As a team administrator, I want to select other team administrators not to be administrators anymore, so that I can more easily manage the team.

21) As a team member, I want to send messages in a group chat, so that I can easily communicate with all the other team members.

22) As a team administrator, I want to create a poll, so that I can know the opinions of the other members related to a specific topic.

23) As a team member, I want to see the results of a previously created poll, so that I can know the opinions of the other members related to a specific topic.

24) As a team member, I want to vote for a poll, so that I can express my opinion with respect to a specific topic.

25) As a team administrator, I want to edit team's information, so that I can change whatever information that is not correct at any time.

26) As a team administrator, I want to delete a team, so that I can remove a team that is no longer necessary.

27) As a team administrator, I want to create an event, so that I can share a task with the colleagues belonging to a specific team which I am managing.

28) As a user, I want to accept or refuse the invitation to participate at an event, so that I can communicate my decision to the team administrator.

29) As a team administrator, I want to modify an event, so that I can adjust some incorrect things that I have specified before.

30) As a team administrator, I want to delete an event, so that I can empty a time slot of the entire team's shared agenda.

31) As a team administrator, I want to check an event for completion, so that I can see which are the remaining shared tasks to do and which are those that we have already completed.

Microservices

name	description
User Management	Handles user account creation, authentication, profile management, password reset, and account deletion.
Notification Service	Manages real-time notifications and provides access to the notification section for users.
Personal Task Management	Allows users to create, modify, delete, and check completion status of their personal tasks and view their personal agenda.
Team Management	Enables creation, modification, deletion of teams, managing team membership, roles (administrators), and listing teams a user belongs to.
Shared Event Management	Manages creation, modification, deletion, completion checking of shared team events, and handling user responses to event invitations.
Real-time Chat	Supports sending and receiving messages in group chats among team members.
Poll Management	Allows team administrators to create polls, and team members to vote and view poll results.

Patterns

group_name	implementation_pattern	involved_microservices	explaination
Service per Team Pattern	saga	User Management,Notification Service,Personal Task Management,Team Management,Shared Event Management,Real-time Chat,Poll Management	Each microservice is assigned to a dedicated team to maximize autonomy and minimize coordination overhead.
Database per Service Pattern	database per service	User Management,Notification Service,Personal Task Management,Team Management,Shared Event Management,Real-time Chat,Poll Management	Each microservice has its own database to ensure loose coupling and independent scalability.
Saga Pattern for Distributed Transactions	saga	Team Management,Notification Service,Shared Event Management	Use the Saga pattern for distributed transactions involving multiple services.
CQRS and API Composition Patterns for Queries	CQRS and API Composition	User Management,Notification Service,Personal Task Management,Team Management,Shared Event Management,Real-time Chat,Poll Management	Implement CQRS and API Composition for querying data from multiple services.

7 point likert scale

1. Strongly disagree
2. Disagree
3. Somehow disagree
4. Neither agree nor disagree
5. Somehow agree
6. Agree
7. Strongly agree

17. Is the division in microservice correct with respect to the context and the user stories? *

1	2	3	4	5	6	7
☆	☆	☆	☆	☆	☆	☆

18. Is **Saga Pattern** correctly applied? *

1	2	3	4	5	6	7
☆	☆	☆	☆	☆	☆	☆

19. Is **CQRS Pattern** correctly applied? *

1	2	3	4	5	6	7
☆	☆	☆	☆	☆	☆	☆

20. Is **Database per Service Pattern** correctly applied? *

1	2	3	4	5	6	7
☆	☆	☆	☆	☆	☆	☆

21. Is **API composition Pattern** correctly applied? *

1	2	3	4	5	6	7
☆	☆	☆	☆	☆	☆	☆

22. Observations

EventTicket

SYSTEM DESCRIPTION:
The purpose of our project is to build a web application providing a set of services aimed at the management and proposals of events and distribution of tickets. The goal is provide to the users a way to discover events and buy or preorder tickets directly online. At the same time the application allows also the events' managers to publish their events in order to promote them and eventually to give the possibility to sell tickets of the event through the website.

USER STORIES:
1) As a client, I want to visit the web application, so that I can explore the functionalities.
2) As a client, I want to register to the service, so that I can be able to use the user's features.
3) As a client, I want to login to the service, so that I become an user, a manager or an admin.
4) As a client, I want to explore the list of events, so that I can see any event.
5) As an user, I want to access my personal page, so that I can see my data.
6) As an user, I want to be able to add a favourite category, so that I can have email notifications about related events.
7) As an user, I want to see the booked pre-sales, so that I can see them.
8) As an user, I want to see the bought tickets, so that I can see them.
9) As an user, I want to book a pre-sale, so that I obtain the pre-sale to access the event.
10) As an user, I want to buy a ticket, so that I obtain the ticket to access the event.
11) As a user, I want to pay for a ticket online so that I can get the ticket code.
12) As an user, I want to logout, so that I become a client.
13) As a manager, I want to see all events I have proposed.
14) As a manager, I want to insert a new event, so that I can add it into the web application.
15) As an manager, I want to access my personal page, so that I can see my data.
16) As a manager, I want to logout, so that I become a client.
17) As an admin, I want to add a new manager, so that he can publish events.
18) As an admin, I want to logout, so that I become a client.
19) As an admin, I want to access my personal page, so that I can see my data.
20) As an user, I want to be able to regenerate my password in case i forgot it.

Microservices

name	description
Authentication Service	Handles user registration, login, logout, and password regeneration functionalities.
User Profile Service	Manages user personal data and profile access for users, managers, and admins.
Event Management Service	Allows managers to create, update, and view their proposed events, and provides clients and users the ability to explore events.
Ticketing Service	Manages ticket booking, buying, and viewing of pre-sales and purchased tickets.
Notification Service	Handles user preferences for favorite categories and sends email notifications about related events.
Admin Management Service	Allows admins to add new managers and manage administrative tasks.
Public Access Service	Provides access to the web application for clients to explore functionalities without logging in.

Patterns

group_name	implementation_pattern	involved_microservices	explaination
User Data Management	Database per Service	User Profile Service	Keep user personal data isolated and private.
Event Management	Saga	Event Management Service	Manage transactions that span multiple services like event creation and ticket availability updates.
Ticketing Transactions	Saga	Ticketing Service	Handle complex transactions like booking, buying, and payment processing.
Admin Management	Database per Service	Admin Management Service	Manage admin and manager data independently.

7 point likert scale

1. Strongly disagree
2. Disagree
3. Somehow disagree
4. Neither agree nor disagree
5. Somehow agree
6. Agree
7. Strongly agree

23. Is the division in microservice correct with respect to the context and   *
    the user stories?

1	2	3	4	5	6	7
☆	☆	☆	☆	☆	☆	☆

24. Is **Saga Pattern** correctly applied? *

1	2	3	4	5	6	7
☆	☆	☆	☆	☆	☆	☆

25. Is **Database per Service Pattern** correctly applied? *

1	2	3	4	5	6	7
☆	☆	☆	☆	☆	☆	☆

26. Observations

    _____

    _____

    _____

    _____

    _____

Utility of DALLE

Please answer the following questions related to the utility of the proposed approach. Look at the demo of the tool to understand how it works.

27. Would you consider using DALLE to help design system architectures? *

Mark only one oval.

○ Yes

○ No

○ Other: _____

28. Do you think DALLE could make your work easier or more efficient? *

Mark only one oval.

○ Yes

○ No

○ Other: _____

29. Would you use DALLE to check or validate your design ideas? *

Mark only one oval.

○ Yes

○ No

○ Other: _____

30. Do you find the suggestions provided by DALLE useful? *

Mark only one oval.

○ Yes

○ No

○ Other: _____

Google Forms