

POLITECNICO DI MILANO
a.y. 2020/2021



HYPERMEDIA COURSE PROJECT

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OPTIONAL PROJECT – MULTIMODAL CHATBOT DESIGN DOCUMENT

Delivery date: 28/06/2021

Running prototype: <https://invation-hypermedia2021.herokuapp.com/>
GitHub folder: https://github.com/FedericaBucchieri/Invation_2020_21_HYP

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1. Introduction

With the aim of facilitating the correction of our Optional Project, here we provide a preliminary overview of the designed company, presenting all the terminology used inside the website and, as a consequence, also in the Multi-Modal Chatbot design process.

INVATION

Invation is an ICT company with a special eye on the Future. The name of the company is related to the union of *Innovation* and *Invention*, two words that already communicate the value proposition of our company. We propose "Visions": a collection of thematic guided tours across different innovative digital products. Developed as an interactive itinerary, each Vision is a set of Invations, bringing the user to explore new solution related to the theme chosen.

Terminology

Developing the Company concept, we played with the name of the three most important entities required by the project.

Original Term	Invation term	Definition
Area	Vision	Interactive itinerary based on a chosen theme, created as a set of innovative products
Product	Invation	Innovative inventions and ideas to shape a new concrete concept of future
People	Invationers	Employees of the company

2. Designed process

In order to design a Chatbot model, firstly we identified the general process to be performed within our website and a user scenario of its application.

2.1 The process – Textual description

We want to create a guided tour inside two of the main areas of our website. After the chatbot introduces it-self as a guide, it asks the user if he wants to explore the Visions or the Invations of the company. If the user choses the Visions, it is redirected to the Visions Page where he can explore all the visions available. Then, the chatbot invites the user to select a specific vision to go more in deep with details about it. Otherwise, if the user goes for Invations, the navigation moves to the Invations page and the invations list is displayed. At this point, the user is asked to select a specific Invation trough the available buttons. If the user wants, he can now select a specific product and he is redirected to the opted invation page. When the user reaches the end of the page, the chatbot demands to the user to write a review of the explored invation. If the user accepts, a review form is displayed, and ready to be completed. If not, it is redirects back to the Home Page. After that, in both cases, the process ends.

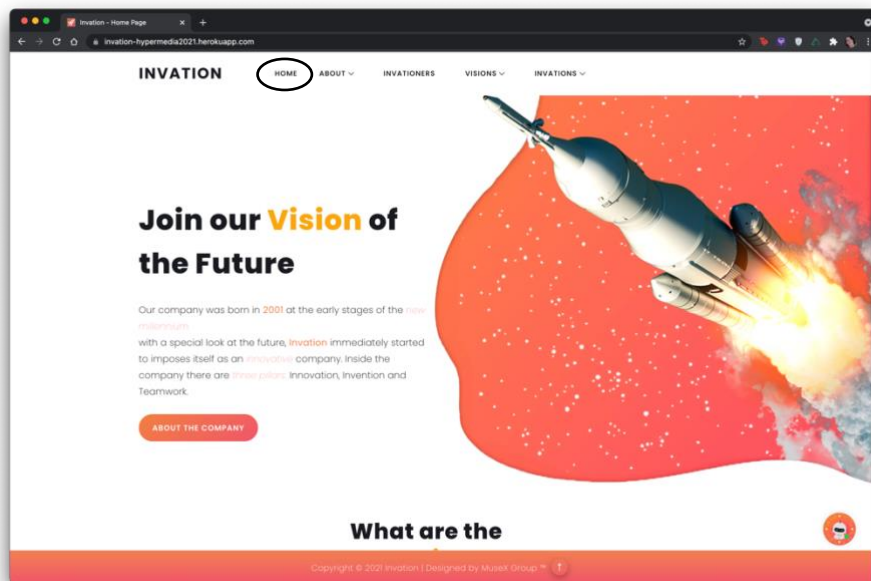
2.2 User scenario

Textual description

Harry is computer science student that is interested in innovation technologies and in particular, in augmented reality. He connects to the Invation website in order to explore the company's products and ideas. Opening the Home page, the Chatbot introduces it-self and welcomes Harry to the home page. The conversational agent then asks whether he want to explore visions or invations and the user goes for invations. Once in the Invations page, Harry can now select one of the proposed products. Asked by the chatbot, the student selects "MuseX" as desired invation to visit. After a look at the product concept and info, when Harry reaches the end of the page, the chatbot invites him to leave a review of the explored product. Harry accepts and completes the review form. Then the process ends.

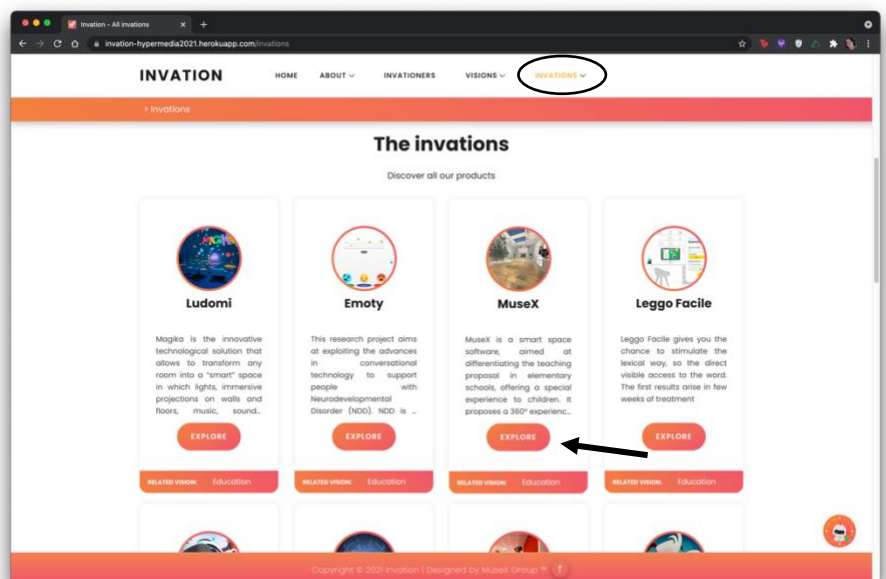
Sequence of visual interactions

1 STEP



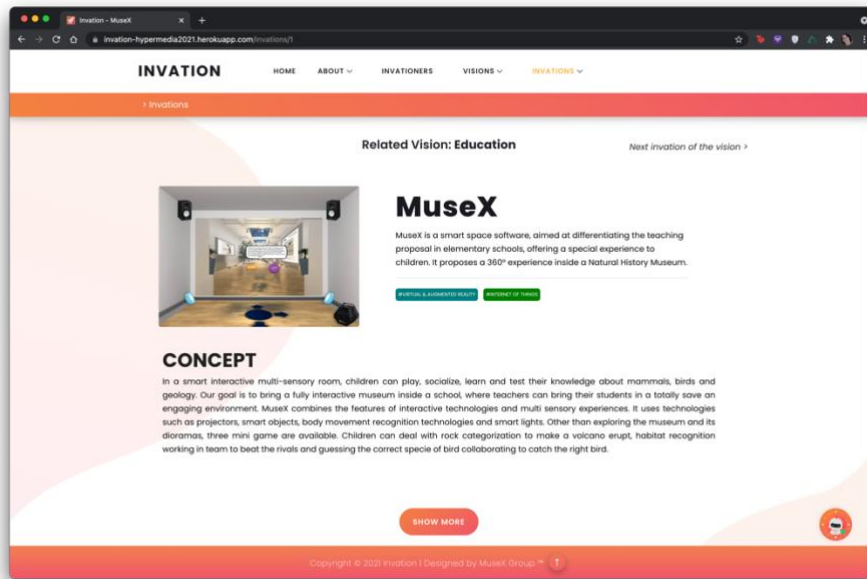
The user is in the Home Page of the website. The chatbot asks if he wants to explore the Visions of the Inventions

2 STEP



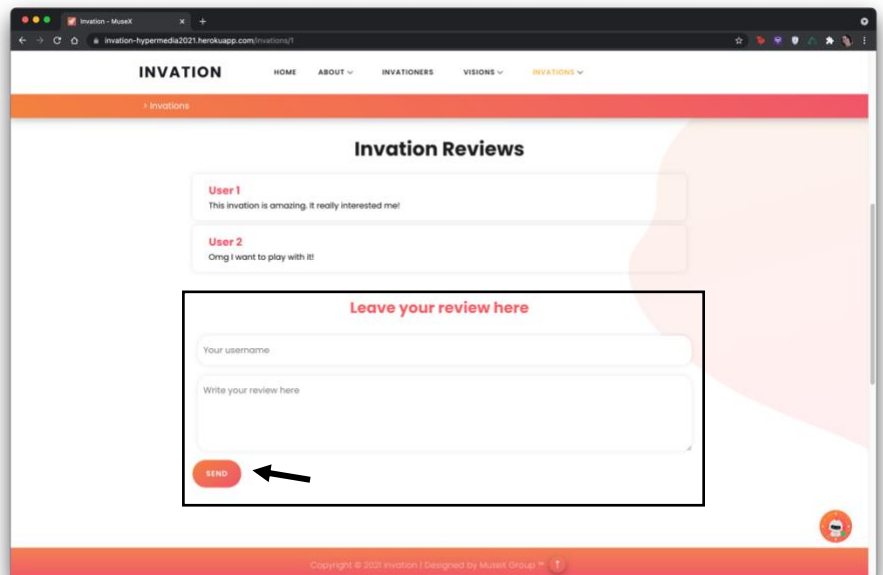
The user is redirected to the Inventions page and the list of Inventions is displayed.

3 STEP



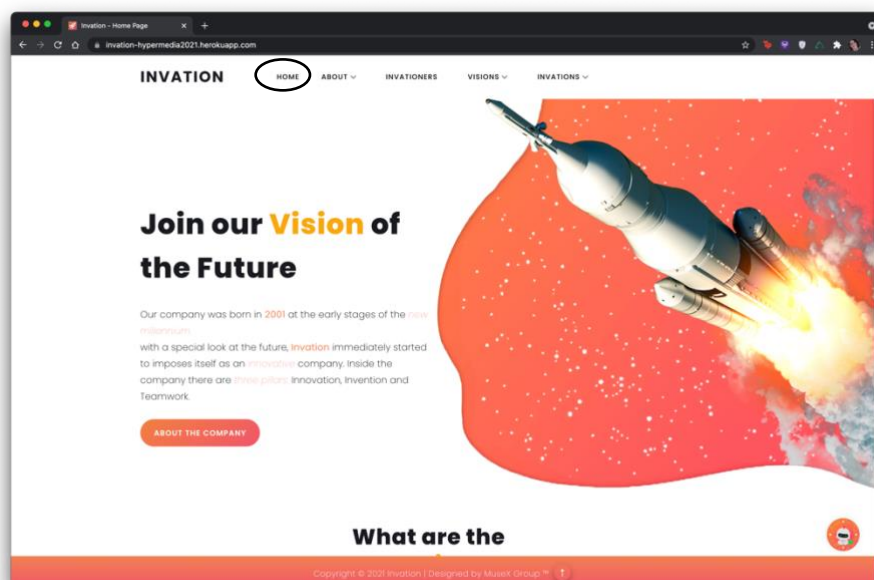
The user is redirected to the selected invation page.

4 STEP



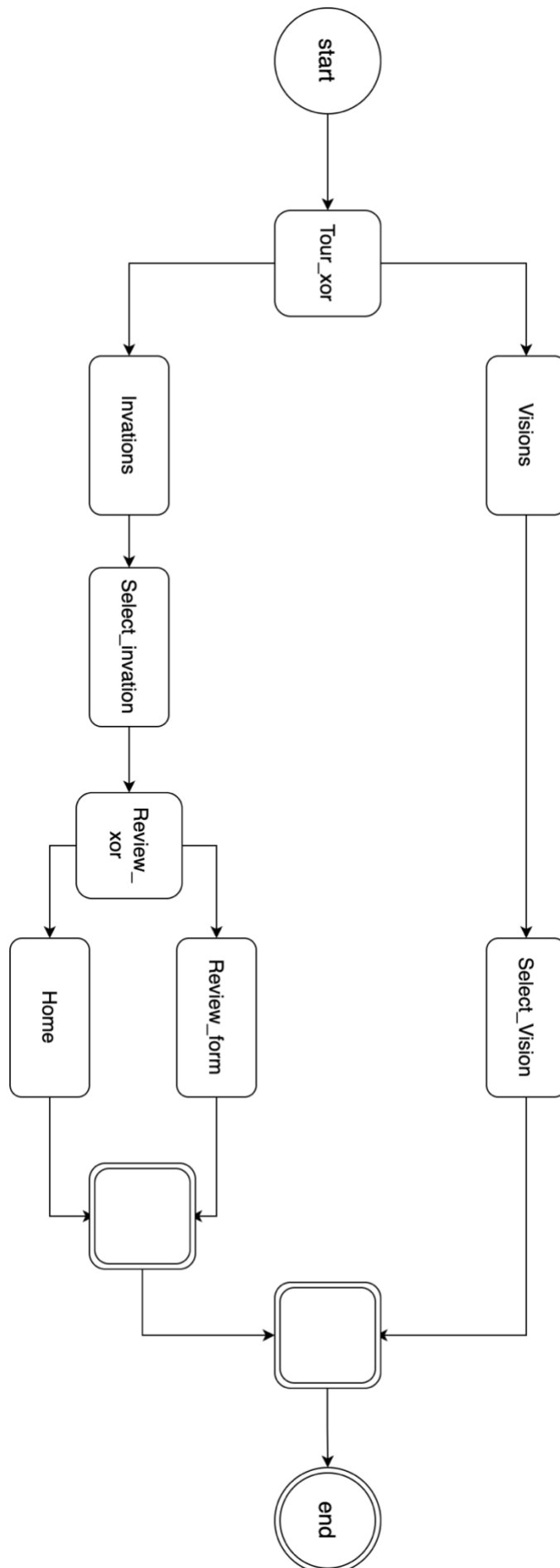
The review form is displayed and ready to be completed.

5 STEP



In both cases the process ends.

3. Chatbot Model



4. Model States Description

With the purpose of providing all the relevant information without producing a real configuration file, each activity is described singularly both providing JSON configuration – including the knowledge base part related to that single activity, and a short textual description.

State descriptions

1. Start

```
{  
  "my_id": "start",  
  "next_id": "guide",  
  "my_type": "START",  
  "callback": "start"  
}
```

At the beginning of the activity, the user reaches the home page of the Website and the chatbot process starts.

Callback *start* – default

2. Tour_xor

```
{  
  "my_id": "tour_xor",  
  "next_id": "end",  
  "my_type": "XOR",  
  "callback": "generic_xor"  
  "choices ": ["visions", "invations"],  
}
```

The home page is displayed, the chatbot introduces it-self as a guide to start the guided tour of Invasion. The user is asked whether he wants to explore the Visions or the Invations or the company. Here the chatbot waits for an answer by the user and in either case it is redirected to the correct page.

Callback *generic_xor* – default


```

"kb": {
  "tour-xor": {
    "initials": [
      "Welcome to our website! Pick Visions or Invations!",
      "Welcome to the world of Invations, do you want to explore our Visions or Invations?"
    ],
    "choices": [
      {
        "id": "visions",
        "intents": ["let's explore visions", "visions"],
        "utterance": [
          "Let's go right away to see our visions",
          "Nice choice! Visions here we come",
          "Okay, so let's go to our Visions"
        ],
      },
      {
        "id": "invations",
        "intents": ["let's explore invations", "invations"],
        "utterance": [
          "Let's go right away to see our invations",
          "Nice choice! Invations here we come",
          "Okay, so let's go to explore our Invations"
        ],
      }
    ],
    "quit": {
      "intents": ["quit", "no", "reset"],
      "utterance": ["oh no! you're never going to be an Invationer. Bye bye"]
    },
    "unknown": "Option not available. Options: visions or invations"
  }
}

```

3. Visions

```
{  
  "my_id": "visions",  
  "next_id": "select_vision",  
  "my_type": "TASK",  
  "callback": "guide"  
}
```

The user is redirected to the Visions page and can explore the list of visions proposed by Invation, starting a guided tour inside the page. Then the user is asked to select a vision to continue the tour.

Callback *guide* – default

```
"kb": {  
  "visions": {  
    "initials": ["Those are our visions. Visions are Interactive itinerary based on a chosen theme, created  
      as a set of innovative products. Let's choose a vision together to explore it"],  
    "completed": {  
      "utterance": "Nice choice, let's go to the selected Vision",  
      "payload": {}  
    }  
  },  
  "steps_v": ["/visions/{id} "],  
  "continue_v": ["continue", "ok", "go", "got it"],  
  "stay_message": "I don't understand. Do you want to continue?"  
}
```

4. Select_vision

```
{  
  "my_id": "select_vision",  
  "next_id": "null",  
  "my_type": "TASK",  
  "callback": "nothing"  
}
```

The user is redirected to the vision he selected and can now explore freely the page. The chatbot just notify the user that now he has complete freedom and greets. The tour ends here, and no callback is called.

```
"kb": {  
  "select_vision": "You arrived in one of our beautiful visions, enjoy it! You can click in each invations  
you see and discover more about the Invation world. My work ends up here, bye bye!"  
}
```

5. Invations

```
{  
  "my_id": "invations",  
  "next_id": "select_invation",  
  "my_type": "TASK",  
  "callback": "guide"  
}
```

The user is redirected to the Invations page and can explore the list of invations proposed, starting a guided tour inside the page. Then the user is asked to select an invation to continue the tour.

Callback *guide* – default

```
"kb": {  
  "invations": {  
    "initials": ["Those are our invations, innovative inventions and ideas to shape a new concrete concept  
of future. Choose one and let's go... in space!"],  
    "completed": {  
      "utterance": "Nice choice, let's go!",  
      "payload": {}  
    }  
  },  
  "steps_v": ["/invations/{id} "],  
  "continue_v": ["continue", "ok", "go", "got it"],  
  "stay_message": "I don't understand. Do you want to continue?"  
}
```


6. Select_invasion

```
{  
  "my_id": "select_invasion",  
  "next_id": "review_xor",  
  "my_type": "TASK",  
  "callback": "reached_end_page"  
}
```

The user is redirected to the invasion he selected and can now explore freely the page. The GUI in parallel, monitors the page exploration with the aim of detecting when the user reaches the end of the page. When so, the process moves to the next step.

Callback *reached_end_page*: This callback monitors the currently displayed portion of the page in the GUI. When the user reaches the end of the page, the callback triggers a behavior in order to go to the next step of the process automatically.

```
"kb": {  
  "select_invasion": "Oh, this invasion is fantastic, enjoy it!"  
}
```

7. Review_xor

```
{  
  "my_id": "review_xor",  
  "next_id": "end",  
  "my_type": "XOR",  
  "callback": "generic_xor"  
  "choices ": ["review_form", "invasions"],  
}
```

The user is asked whether he wants to leave a review to the previously explored invasion when he is still in the invasion page.

Callback *generic_xor* – default

```
"kb": {  
  "review-xor": {  
    "initials": [  
      "If you have a minute, can you leave a review to this invasion?"  
    ],  
  },  
}
```

```

"choices": [
  {
    "id": "review_form",
    "intents": ["review", "ok"],
    "utterance": [
      "Nice choice! You are going to be an invationer",
      "Okay, we appreciate your time"
    ],
  },
  {
    "id": "invations",
    "intents": ["no", "back", "invations"],
    "utterance": [
      "Ok, let's go back to invations list",
      "Maybe another time, thanks!"
    ],
  }
],
"quit": {
  "intents": ["quit", "reset"],
  "utterance": ["oh no! you're never going to be an Invationer. Bye bye"]
},
"unknown": "Option not available. Options: review or back"
}
}

```

8. Review_form

```

{
  "my_id": "review_form",
  "next_id": "null",
  "my_type": "TASK",
  "callback": "nothing"
}

```

A review form is displayed and ready to be filled up. The user is free to write his review and then the tour ends.

```
"kb": {  
  "review_form": "You can complete this form to leave your review"  
}
```

9. Home

```
{  
  "my_id": "home",  
  "next_id": "null",  
  "my_type": "TASK",  
  "callback": "nothing"  
}
```

The user is redirected automatically to the Home page and the tour ends.

```
"kb": {  
  "home": "And after our exploration of the Invation space, we are back at the home page."  
}
```

10. End

```
{  
  "my_id": "end",  
  "next_id": "start",  
  "my_type": "END",  
}
```

The user is redirected automatically to the home page and the tour ends.

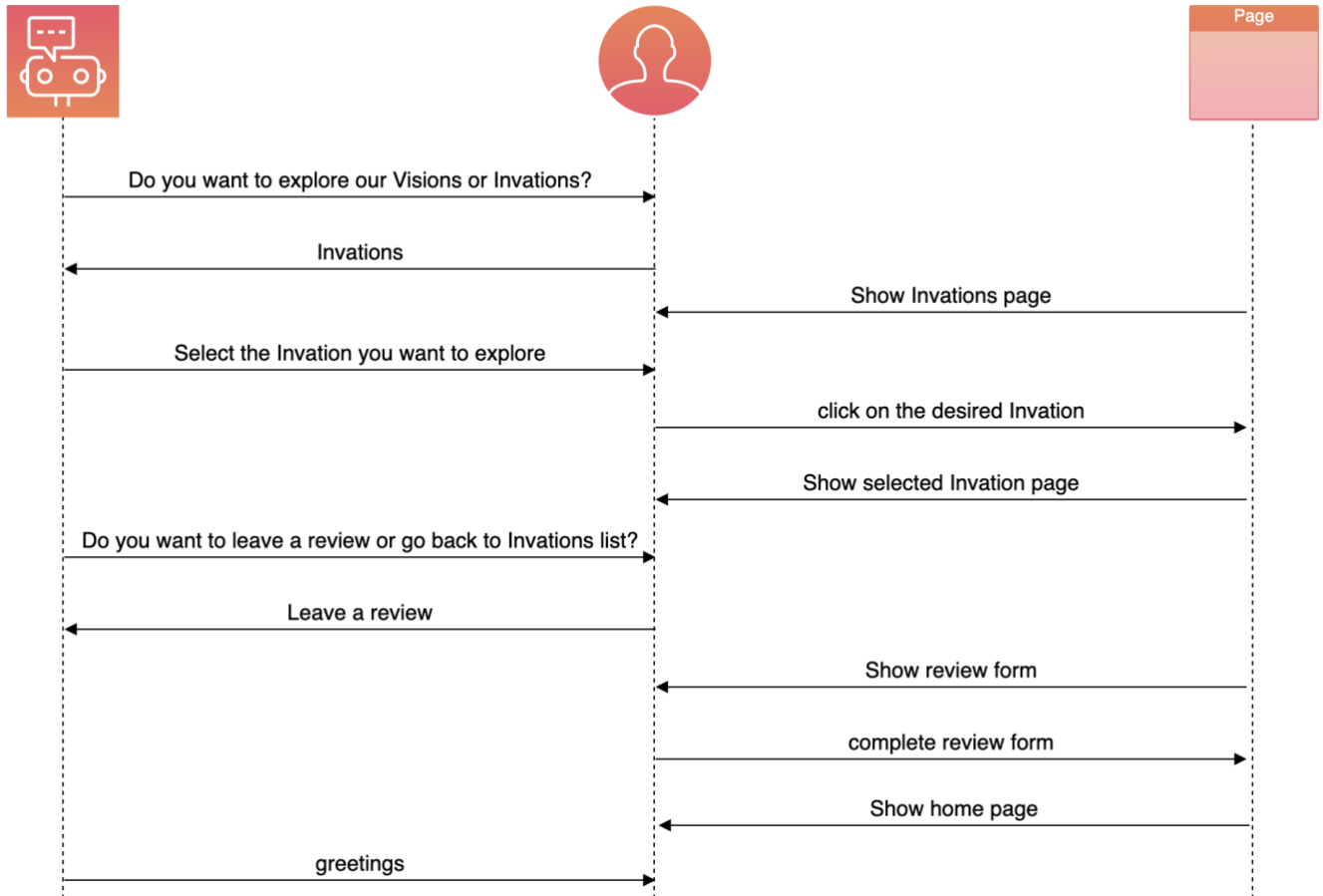
```
"kb": {  
  "end": "The tour ends here, bye bye!"  
}
```

5. Sequence Diagrams

The chatbot interaction process is here described using Sequence Diagrams, one per each branch of the designed model.

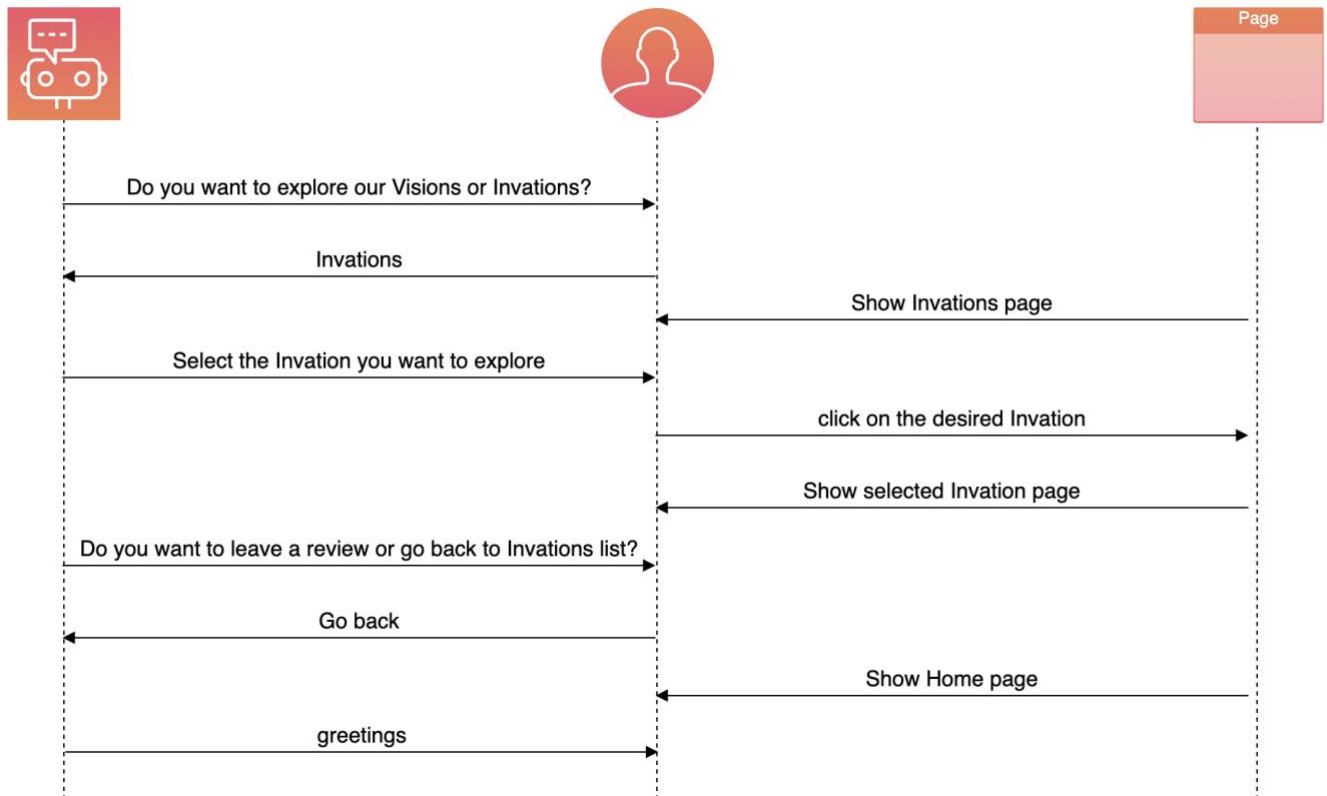


Branch 1 – Invations and Review_form





Branch 2 – Invations without review



Branch 3 – Visions

