



IHC – Assignment n.2

Design, prototyping and evaluation of an Interactive
Application

CalendarSync UA

Group Lab P5:

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Introduction

- Brief contextualization/motivation:



- We all struggle to manage all academic events.
- We have to manually insert new updates in our calendar.

- With CalendarSync UA:

- Import calendar from Paco and eLearning
- Remove “trash tasks”
- Export only important tasks



Requirements analysis

- Topics:
 - Personas
 - Scenarios
 - Analyze Main Tasks
 - Identify Requirements



Personas

UA Student

Fictional name: António Maria

Job title: Student

Demographics: 22 years old & Bachelor in Design

Background: Joined a new semester and intends to synchronize events from University of Aveiro applications to his personal Outlook Calendar.

Environment: He is using the library internet with a stable connection to the internet.

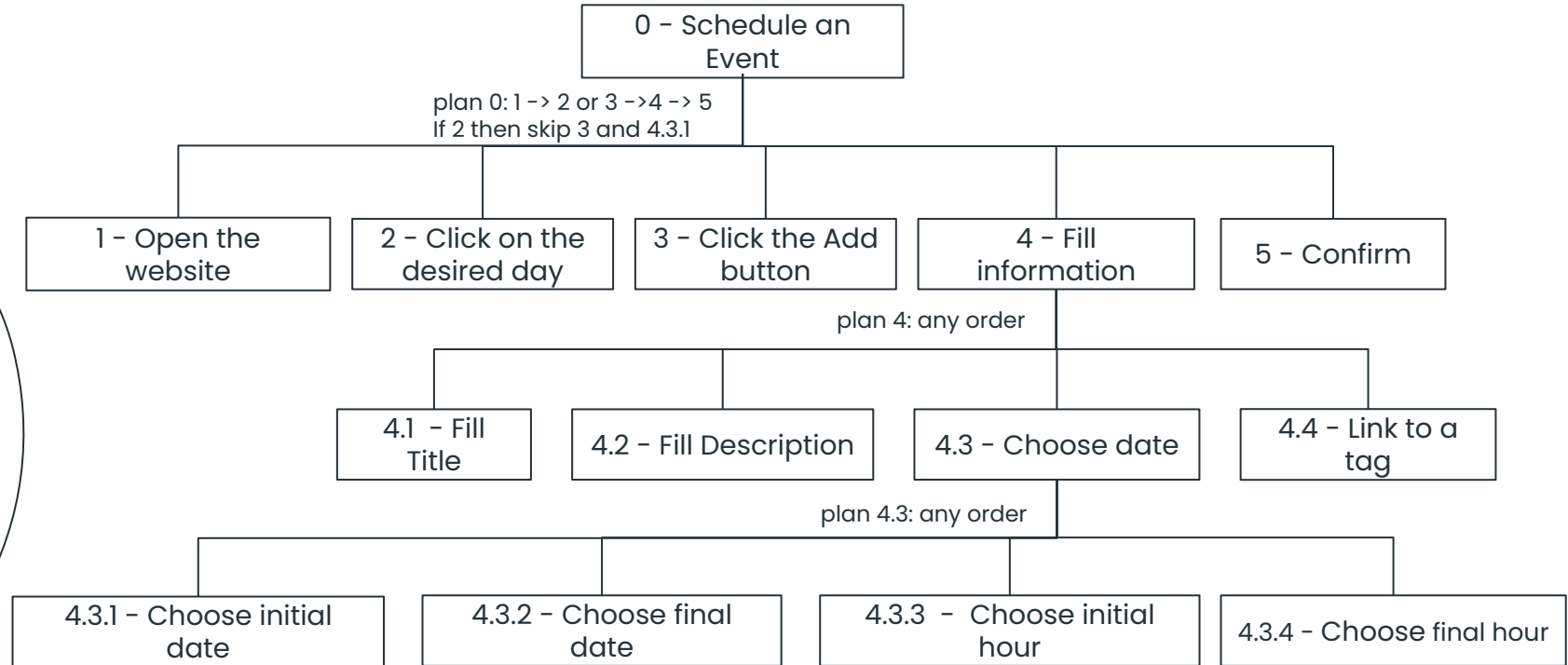
Needs: Something to synchronize events easily, without importing the “trash events”



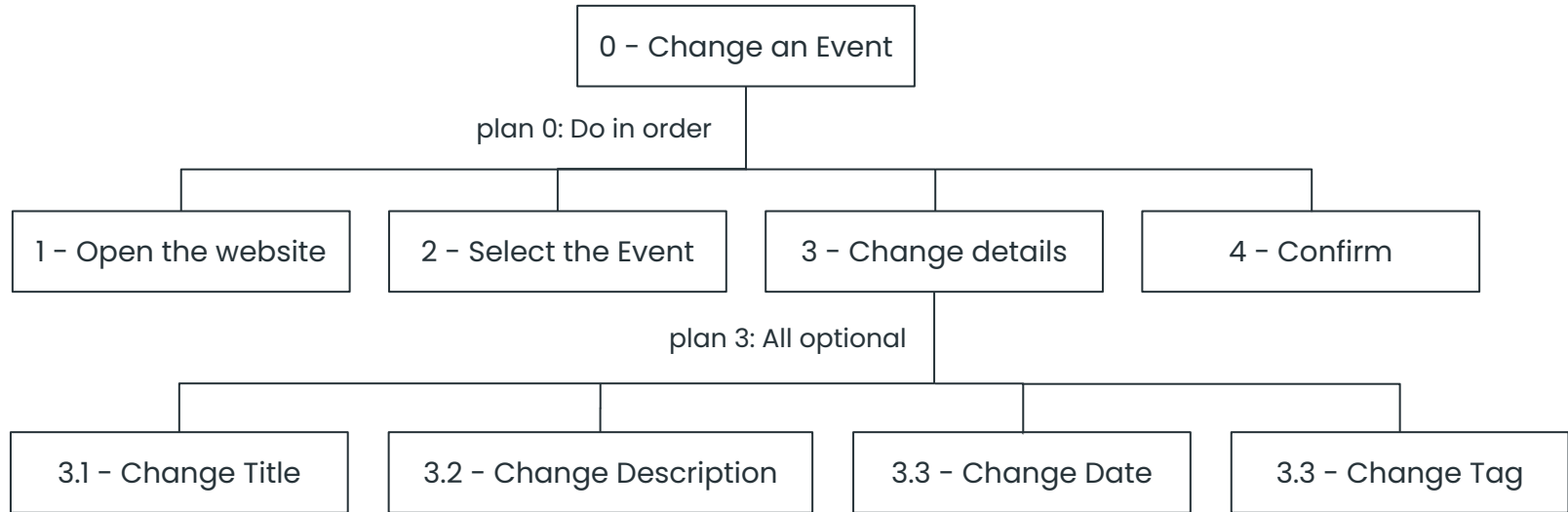
Scenarios

- **Student:** António is seating at the Library wondering how many exams and deadlines he has in a specific subject. He wants to update his personal calendar but he doesn't want the unnecessary events that come along when he imports in the usual platform, so:
 - He goes to our web page.
 - Import all events
 - Do the changes that he needs (add/edit/delete events)
 - Filter at his choice
 - Export to personal calendar

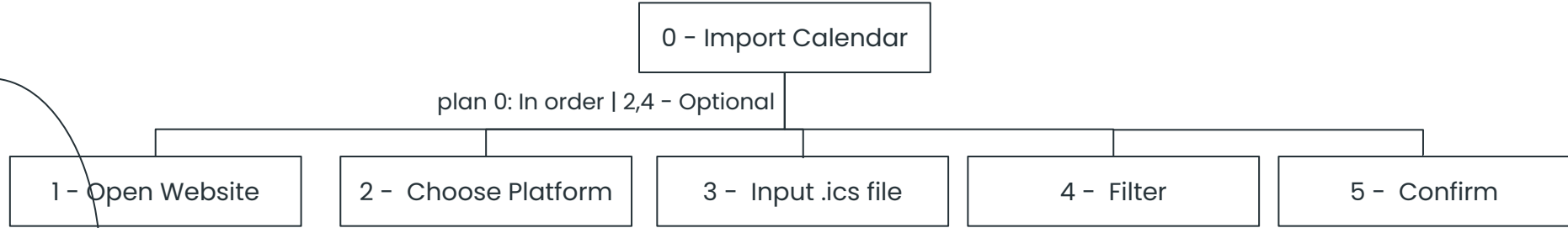
Tasks - Schedule an Event



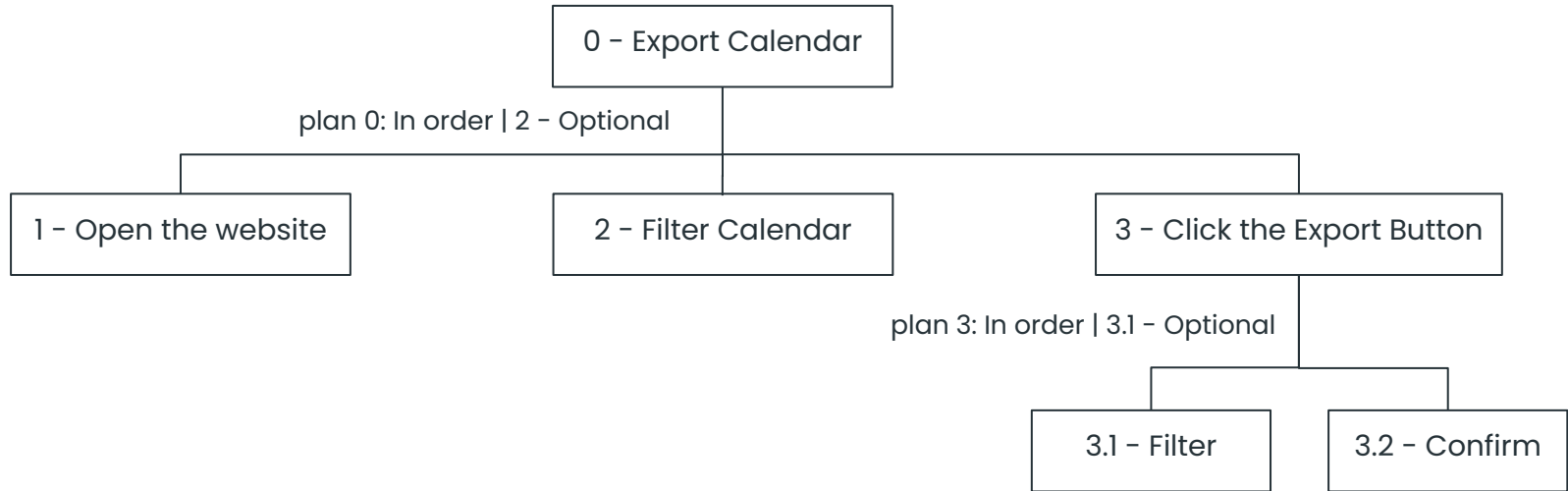
Tasks - Change an Event



Tasks - Import Calendar

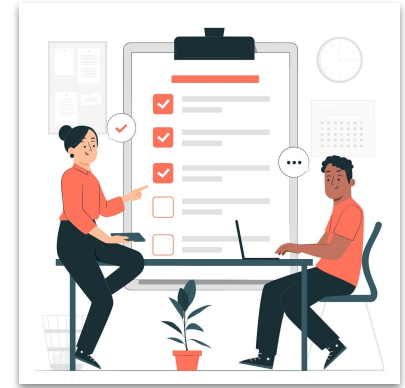


Tasks - Export Calendar



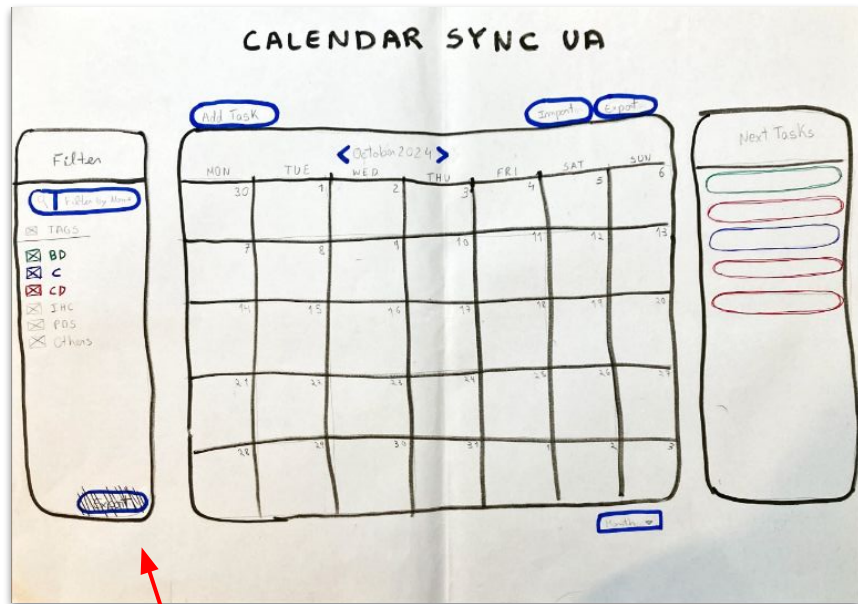
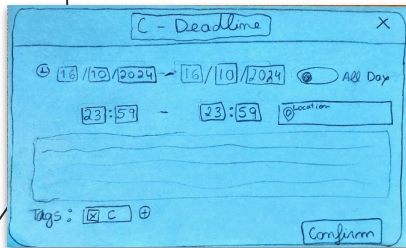
Requirements

- Non-functional requirements
 - **Ease of use**
 - Reliability and availability
 - Capacity and scalability
 - Portability
- Functional requirements
 - User should have the possibility to **import** calendar from **Paco and eLearning**
 - User should be able to **set a new event**
 - User should be able to **change/remove** current events
 - User should have the possibility to **filter** the calendar
 - User should have the possibility to **import/export** calendar

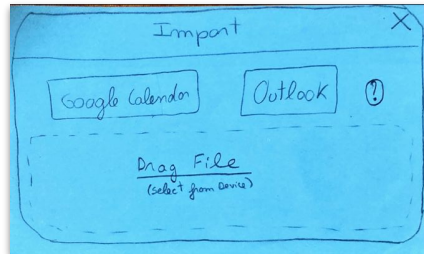
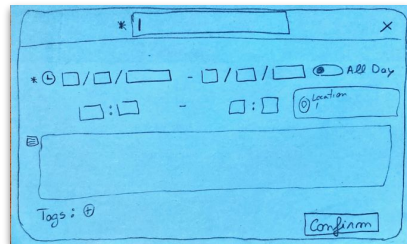
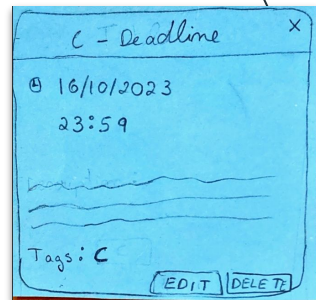


Low Fidelity Prototype (LFP)

LFP using an A3 paper and post-its

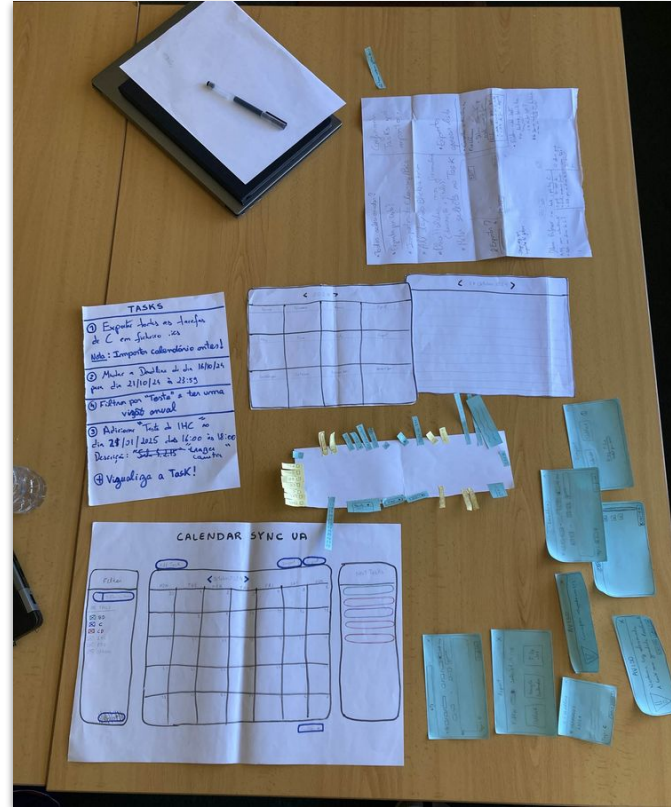
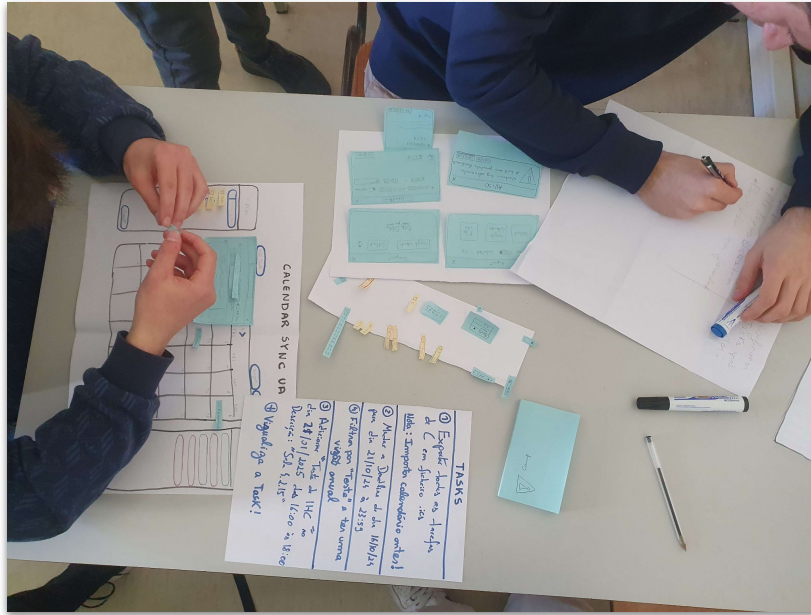


removed during the LFP



Low Fidelity Prototype (LFP)

LFP using an A3 paper and post-its



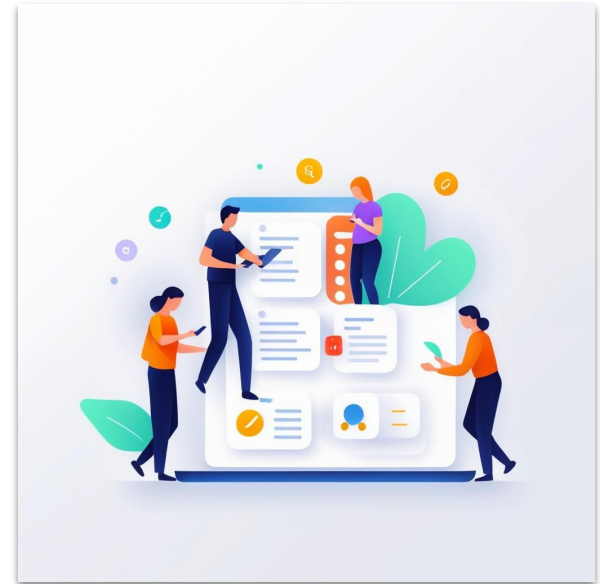
LFP User Evaluation

- Participants

- 5 students with ages between 19–22.

- Tasks

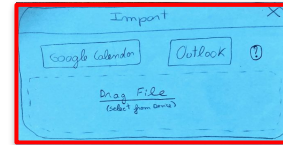
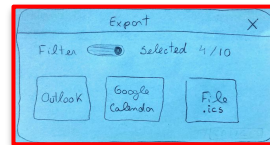
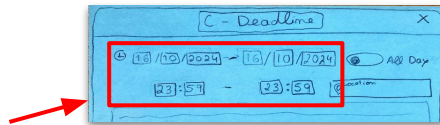
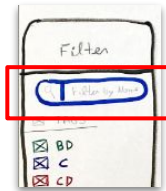
1. Export all tasks of C class to a .ics file.
2. Change the deadline from 16/10/24 to 21/10/24 at 23:59.
3. Filter by *Teste*.
4. Add *Teste de IHC* on 21/1/2025 from 16:00 to 18:00 and add a description Sala 5.2.15.



Problems and solutions

Errors found

Problems Found	Solutions
<ul style="list-style-type: none">Some users didn't realize it was necessary to introduce both a start date and an end date	<ul style="list-style-type: none">Add subtitles "Start date" and "End date"
<ul style="list-style-type: none">When exporting, there is no feedback on what is actually being exported	<ul style="list-style-type: none">Show selected events on export modal
<ul style="list-style-type: none">No visual confirmation of the tasks we were importing	<ul style="list-style-type: none">Show which events are being imported
<ul style="list-style-type: none">Search bar is ambiguous and useless	<ul style="list-style-type: none">Remove unnecessary search bar



Development

Front-end:



Back-end:

(import/export files)



Communication :



Main Interface

[Calendar](#) [About](#)

CalendarSync UA

Get started

Filter

☒ Select All

Métodos Probabilísticos Para Engenharia Informática

Sistemas Operativos

Computação Distribuída

Padrões E Desenho De Software

Sistemas Multimédia

Algoritmos E Estruturas De Dados

Compiladores

Interação Humano-computador

Redes E Serviços

Bases De Dados

Add Event +

ImportExport

< June 2024 >

Mon	Tue	Wed	Thu	Fri	Sat	Sun
27	28 22:59 Second Assig	29	30	31	1	2
3	4	5	6	7	8	
10	11	12 14:00 exam	13	14 Eventos com texto maior Eventos com texto maior	15	
17 9:00 exam	18	19	20 Eventos com texto maior	21	22	
24 9:00 exam	25	26	27	28 14:00 exam	29	30

Tasks

exam
Métodos Probabilísticos Para Engenharia Informática
02:00 PM - September 1, 2023

exam
Métodos Probabilísticos Para Engenharia Informática
02:00 PM - September 1, 2023

exam
Algoritmos E Estruturas De Dados
02:00 PM - September 4, 2023

exam
Redes E Serviços
02:00 PM - September 5, 2023

exam
Sistemas Operativos
02:00 PM - September 6, 2023

exam
Sistemas Multimédia
02:00 PM - September 7, 2023

exam
Bases De Dados
02:00 PM - September 8, 2023

exam
Compiladores
09:00 AM - September 11, 2023

exam

exam

Description:
Redes E Serviços

Start Date: 23/9/2023End Date: 23/9/2023

Start Time: 14:00End Time: 16:00

Tag:
Redes E Serviços

EditDelete

Main Interface

Import ICS Files

Confirmation: Import (42)

☒ Métodos Probabilísticos Para Engenharia Informática
☒ Sistemas Operativos
☒ Computação Distribuída
☒ Padrões E Desenho De Software
☒ Sistemas Multimédia
☒ Algoritmos E Estruturas De Dados
☒ Compiladores
☒ Interação Humano-computador

Selected (42)

exam
Métodos Probabilísticos Para Engenharia Informática
02:00 PM - January 17, 2024

exam
Métodos Probabilísticos Para Engenharia Informática
04:00 PM - January 17, 2024

exam
Métodos Probabilísticos Para Engenharia Informática
02:00 PM - February 2, 2024

Add Event

Title:

Description:

Start Date: End Date:

Start Hour: End Hour:

Tag:

+ Add Event Close

Export Events to ICS

Confirmation: Export (9)

☐ Computação Distribuída
☐ Padrões E Desenho De Software
☐ Sistemas Multimédia
☐ Algoritmos E Estruturas De Dados
☐ Compiladores
☒ Interação Humano-computador
☐ Redes E Serviços
☐ Bases De Dados

Selected (9)

exam
Métodos Probabilísticos Para Engenharia Informática
02:00 PM - January 17, 2024

exam
Métodos Probabilísticos Para Engenharia Informática
04:00 PM - January 17, 2024

exam
Métodos Probabilísticos Para Engenharia Informática
02:00 PM - February 2, 2024

Main Problems

- Brief list:

- Paco calendar codification
- Conversion to/from .ics files
- Setup backend to allow import/export files
- Dynamic synchronization between components
- Uniformization of time between components

paco iso-8859-1 codification

```
BEGIN%3AVCALENDAR%0D%0APRODID%3A-//github.com/rianjs/ical.net//NONSG
ML%20ical.net%204.0//EN%0D%0AVERSION%3A2.0%0D%0ABEGIN%3AVEVENT
%0D%0ACLASS%3APUBLIC%0D%0ACOMMENT%3A%0D%0ACREATED%3A2024
0513T223124%0D%0ADESCRIPTION%3A40437-ALGORITMOS%20E%20ESTRUT
URAS%20DE%20DADOS%3AFN%0D%0ADTEND%3A20240112T160000%0D%0AD
TSTAMP%3A20240513T213124Z%0D%0ADTSTART%3A20240112T140000%0D%0
ALLOCATION%3AANF.%203.1.15%5C%2C%20ANF.%20IV%5C%2C%20ANF.%20V
%5C%2C%20ANF.%205.2.22%5C%2C%205.1.62%0D%0ASEQUENCE%3A0%0D%
0ASUMMARY%3Aexam%0D%0AUID%3A0d31a6b6-bee2-4f8f-82cd-971012984a47%
0D%0AEND%3AVEVENT%0D%0ABEGIN%3AVEVENT%0D%0ACLASS%3APUBLIC
%0D%0ACOMMENT%3A%0D%0ACREATED%3A20240513T223124%0D%0ADESC
RIPTION%3A40437-ALGORITMOS%20E%20ESTRUTURAS%20DE%20DADOS%3
ARE%0D%0ADTEND%3A20240131T160000%0D%0ADTSTAMP%3A20240513T213
124Z%0D%0ADTSTART%3A20240131T140000%0D%0ALLOCATION%3AANF.%20IV
%5C%2C%20ANF.%20V%5C%2C%205.3.3%0D%0ASEQUENCE%3A0%0D%0ASU
MMARY%3Aexam%0D%0AUID%3Ae1baf8ff-2285-4c3a-aa17-7e5e9388af7b%0D%0
AEND%3AVEVENT%0D%0ABEGIN%3AVEVENT%0D%0ACLASS%3APUBLIC%0D%
0ACOMMENT%3A%0D%0ACREATED%3A20240513T223124%0D%0ADESCRIPT
ION%3A40432-SISTEMAS%20MULTIM%C9DIA%3ADZ%0D%0ADTEND%3A202309
07T170000%0D%0ADTSTAMP%3A20240513T213124Z%0D%0ADTSTART%3A202
30907T150000%0D%0ALLOCATION%3AANF.%20IV%0D%0ASEQUENCE%3A0%0D%
0ASUMMARY%3Aexam%0D%0AUID%3A3d7e8e55-9fc9-4b25-8441-a87445e4881
c%0D%0AEND%3AVEVENT%0D%0ABEGIN%3AVEVENT%0
```

FP User Evaluation

FP – Functional Prototype

Participant

12 students with ages
between 19–22.

Approach

- Freedom & Stress free
- taking notes on Observer Script
- finally ask for an assessment of the proposed task

Tasks

- **Import calendars:**
 - Import Paco's and eLearning's calendars for the IHC events.
 - Verify if it was successful.
- **Delete task:**
 - Delete the undesired task that was imported from Paco (IHC task from September 2023).
 - Verify if it was successful.
- **Modify task:**
 - Change the names of the IHC exams to ("Época Normal" and "Época Recurso").
 - Verify if it was successful.
- **Add task:**
 - Add a "Bootcamp" event for IHC from May 18 (10 AM) to May 25 (11 AM).
 - Verify if it was successful.
- **Export filtered calendar:**
 - Export the events you just filtered.
 - Verify if it was successful.

Functional Prototype (FP)

Usability Test

context!

Usability test	
Tasks for CalendarSync UA	
Contexto geral: É aluno da Universidade de Aveiro e repara que tem novas tarefas/exames de IHC tanto no elearning como no Paco e precisa de as exportar para o seu calendário pessoal. Para isso vai utilizar a nossa aplicação para ir buscar todos os eventos de IHC do calendário do Paco e do elearning. Visto que a importação irá conter algum "lixo" vai proceder a uma filtragem e a umas pequenas transformações nos eventos. Finalmente, exporta o calendário.	
Tasks:	
Task 1	Importar o calendário do Paco e do elearning, no formato ".ics", contendo apenas eventos de IHC. Verificar se foram importados com sucesso. Very difficult <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 Very easy
Task 2	Qual a duração do exame de IHC em Setembro de 2023? Very difficult <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 Very easy
Task 3	Eliminar o exame de IHC de Setembro. (visto que o evento já passou) Very difficult <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 Very easy

Task 4	Mudar os nomes dos exames de IHC de dia 17/06 e dia 04/07 para "Exame Época Normal" e "Exame Época Recurso" respetivamente. Very difficult <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 Very easy
Task 5	Adicionar o evento "Bootcamp" com a tag IHC de dia 18 de maio (10h) a dia 25 de maio (11h). Very difficult <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 Very easy
Task 6	Exportar o calendário que acabou de fazer, no formato ".ics", contendo unicamente eventos de IHC. Very difficult <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 Very easy

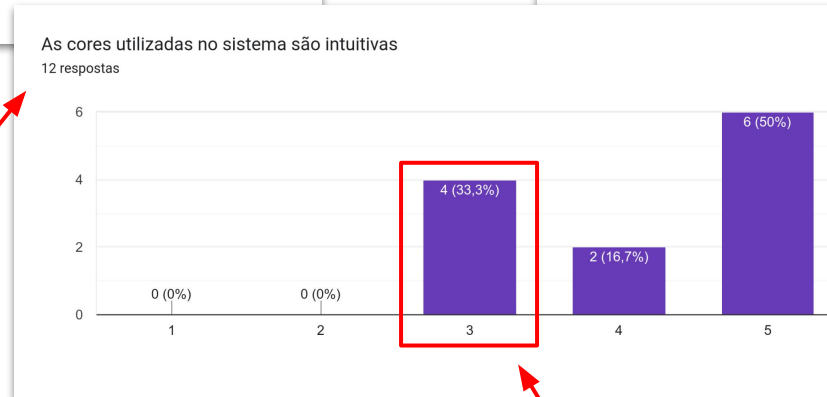
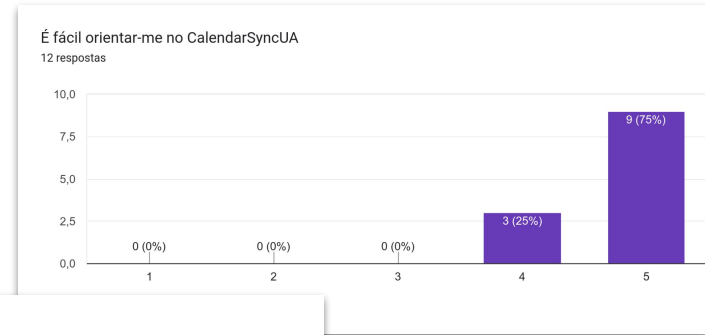
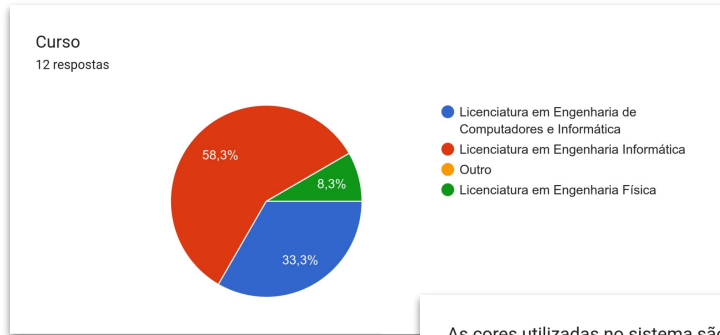
Observer Script Results

In Class Results

	Task 1	Task 2	Task 3	Task 4	Task 5
U-1	✓ 5	✓ 5	✓ 5	✓ 5	✓ 5
U-2	✓ 4	✓ 3	✓ 5	✓ 5	✓ 5
U-3	✓ 5	✓ 5	✓ 5	✓ 5	✓ 5
U-4	✓ 5	✓ 4	✓ 4	✓ 5	✓ 5
U-5	✓ 5	✓ 4	✓ 5	✓ 5	✓ 5

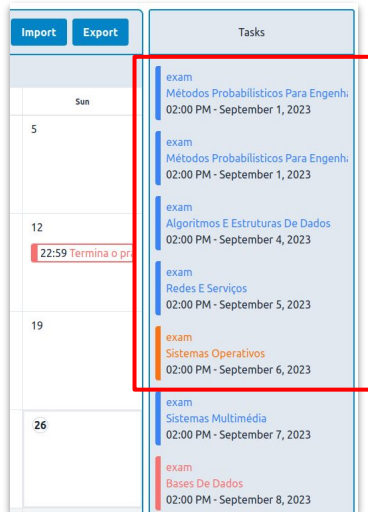
SUS – Forms Results

General Important Forms Results



SUS – Forms Conclusion

- Problems
 - When exporting, the hour was set 1 hour early
 - Event date format wasn't uniform
 - Tags color are not unique



	Import	Export	Tasks
Sun			<div>exam</div> <div>Métodos Probabilísticos Para Engenh</div> <div>02:00 PM - September 1, 2023</div>
5			<div>exam</div> <div>Métodos Probabilísticos Para Engenh</div> <div>02:00 PM - September 1, 2023</div>
12			<div>exam</div> <div>Algoritmos E Estruturas De Dados</div> <div>02:00 PM - September 4, 2023</div>
22:59 Termina o pr			<div>exam</div> <div>Redes E Serviços</div> <div>02:00 PM - September 5, 2023</div>
19			<div>exam</div> <div>Sistemas Operativos</div> <div>02:00 PM - September 6, 2023</div>
26			<div>exam</div> <div>Sistemas Multimédia</div> <div>02:00 PM - September 7, 2023</div>
			<div>exam</div> <div>Bases De Dados</div> <div>02:00 PM - September 8, 2023</div>

random colors are
a problem!

Se pretender pode deixar aqui comentários sobre o sistema, como funcionalidades que gostaria de ver adicionadas, ou até mesmo outros aspectos não abordado pelas perguntas.

Penso que o formato de data: dd/mm/yyyy poderia ser mais consistente. Para além disso, está muito bom!

Start Date: mm / dd / yyyy

End Date: mm / dd / yyyy

≠

exam

Description: Redes E Serviços

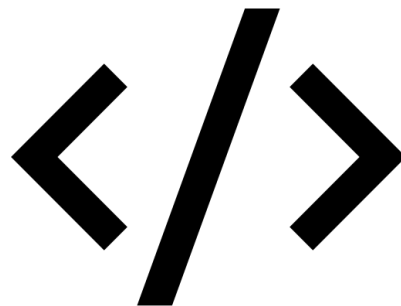
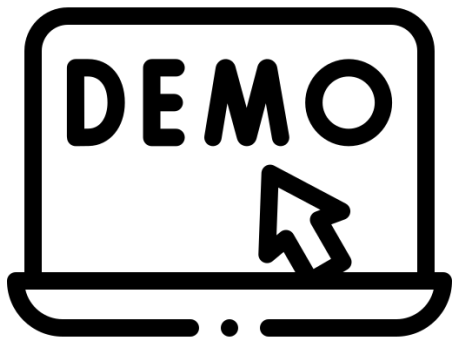
Start Date: 23/9/2023

End Date: 23/9/2023

Start Time: 14:00

End Time: 16:00

Demonstration



Repositório: <https://github.com/pedropintoo/CalendarSyncUA>

(video)

Heuristic Evaluation

1. Understand the 10 Usability Heuristics**
2. Evaluate Independently (~30-60 minutes)
3. Consolidate Identified Issues
 - All agree?
 - Set an agreed Severity**:
 - 0 = I don't agree that this is a usability problem at all
 - 1 = Cosmetic problem
 - 2 = Minor usability problem
 - 3 = Major usability problem
 - 4 = Usability catastrophe



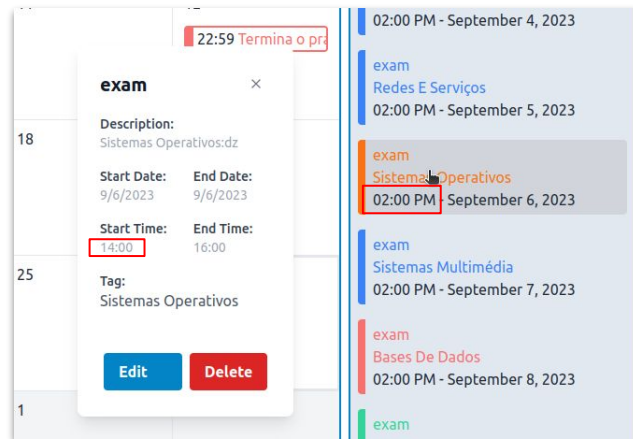
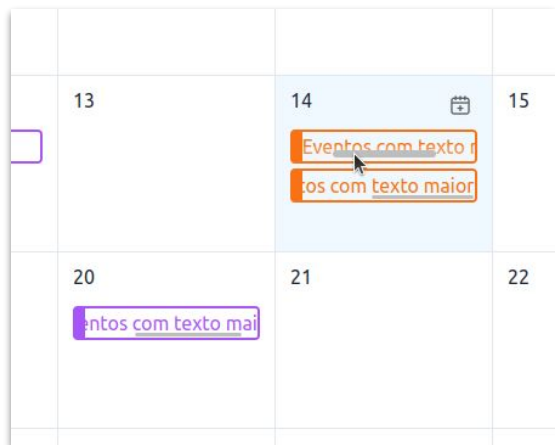
10 USABILITY HEURISTICS: [HTTPS://WWW.NNGROUP.COM/ARTICLES/TEN-USABILITY-HEURISTICS/](https://www.nngroup.com/articles/ten-usability-heuristics/)

Heuristic Evaluation

Issue: Hour format is not consistent. Some places with 12-hour (AM-PM) others with 24-hour format.

Heuristic: Consistency and Standards

Severity: 1



Issue: Scroll in event/task didn't work in certain positions

Heuristic: Consistency and Standards

Severity: 1

Heuristic Evaluation

Issue: Some buttons in light mode others in dark

Heuristic: Consistency and Standards

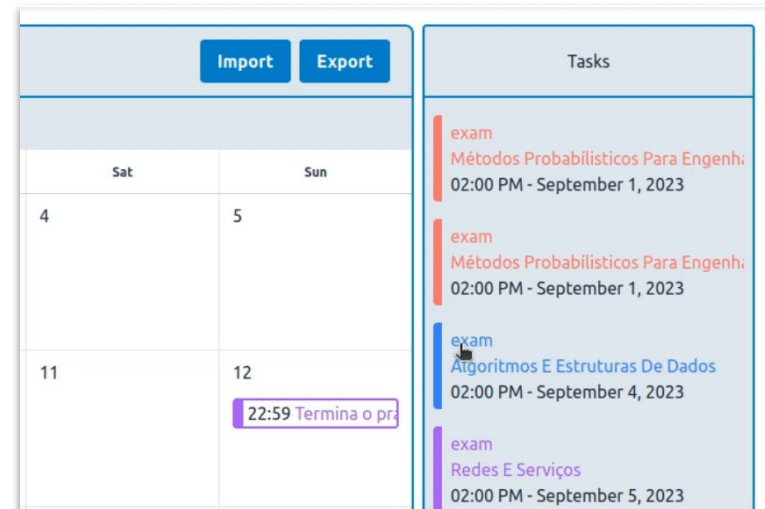
Severity: 1

Issue: Event's modal appears to be clickable

Heuristic: Consistency and Standards

Severity: 1

Standard website exit button:



[check here]: this image should be this GIF

Heuristic Evaluation

	André	Diogo	Guilherme	Pedro
Problem found	Severity	Severity	Severity	Severity
Consistency and Standards – Hour format not consistent	1	X	1	X
Consistency and Standards – Scroll view didn't work in certain touch positions	1	1	1	2
Consistency and Standards – Event's modal appears to be clickable	X	1	1	1
Consistency and Standards – Some buttons in light mode others in dark	1	X	X	1

Future work

- For the near future we want to:
 - Fix **Heuristic Evaluation** problems
 - Add year/day view
 - Add dark mode option
 - Create a page to login/sign up so the calendar could be saved online
 - Integration with Paco and eLearning





IHC – Assignment n.2

Design, prototyping and evaluation of an Interactive Application

Special thank you, for helping us improve our project!

Questions?

Work distribution:

Pedro Pinto – 26%
André Alves – 26%
Guilherme Santos – 26%
Diogo Guedes – 22%