

Designing Connected Content

Final Presentation

Group 2

26.01.2022

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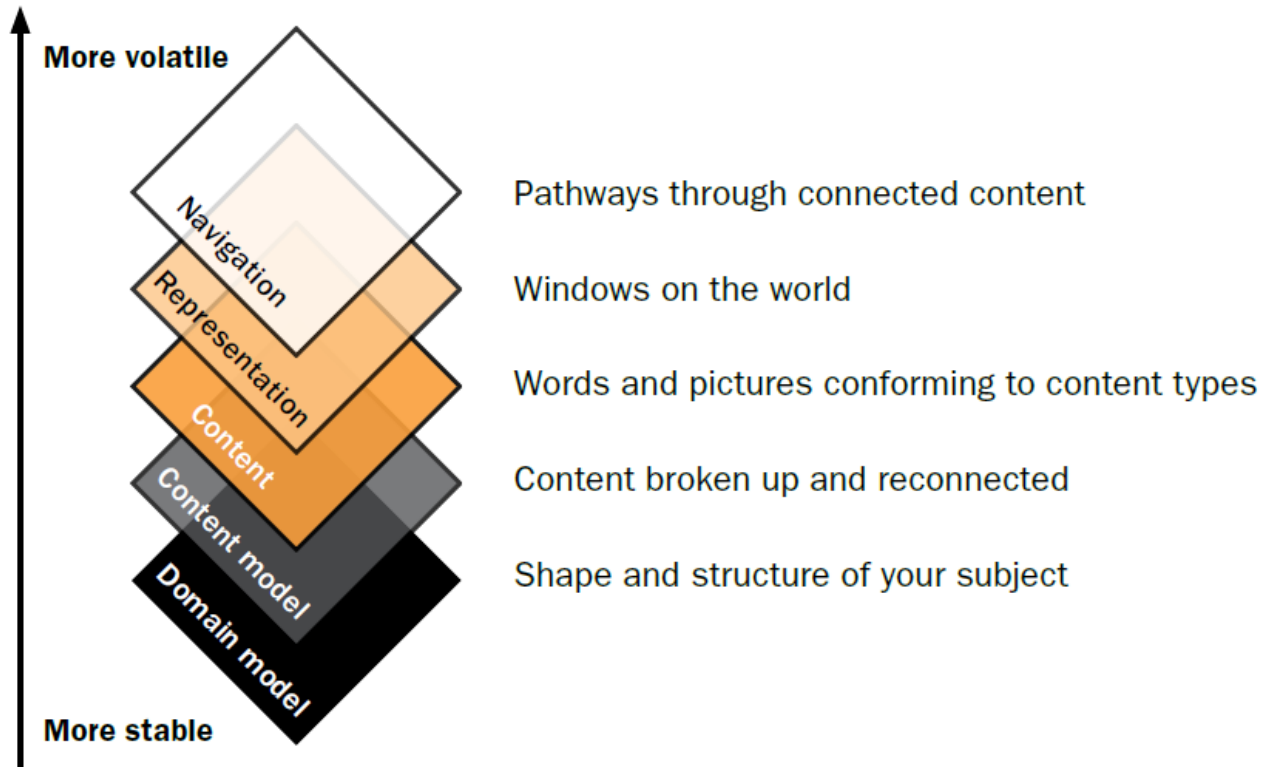
Agenda

1. Introduction
2. Domain Model
3. Content Model
4. Content Management System (Contentful)
5. Static versus Dynamic Websites
6. Application of Concepts in Example Conference Website

Introduction

- Structured way of modeling a domain.
- Prevention of “loss” of content.
- Putting content into context.
- Separation of content and structure from presentation.
- Providing a possibility to publish content to people who don't have special technical knowledge.
- Based on Atherton, Mike, and Carrie Hane (2017): *Designing Connected Content*.

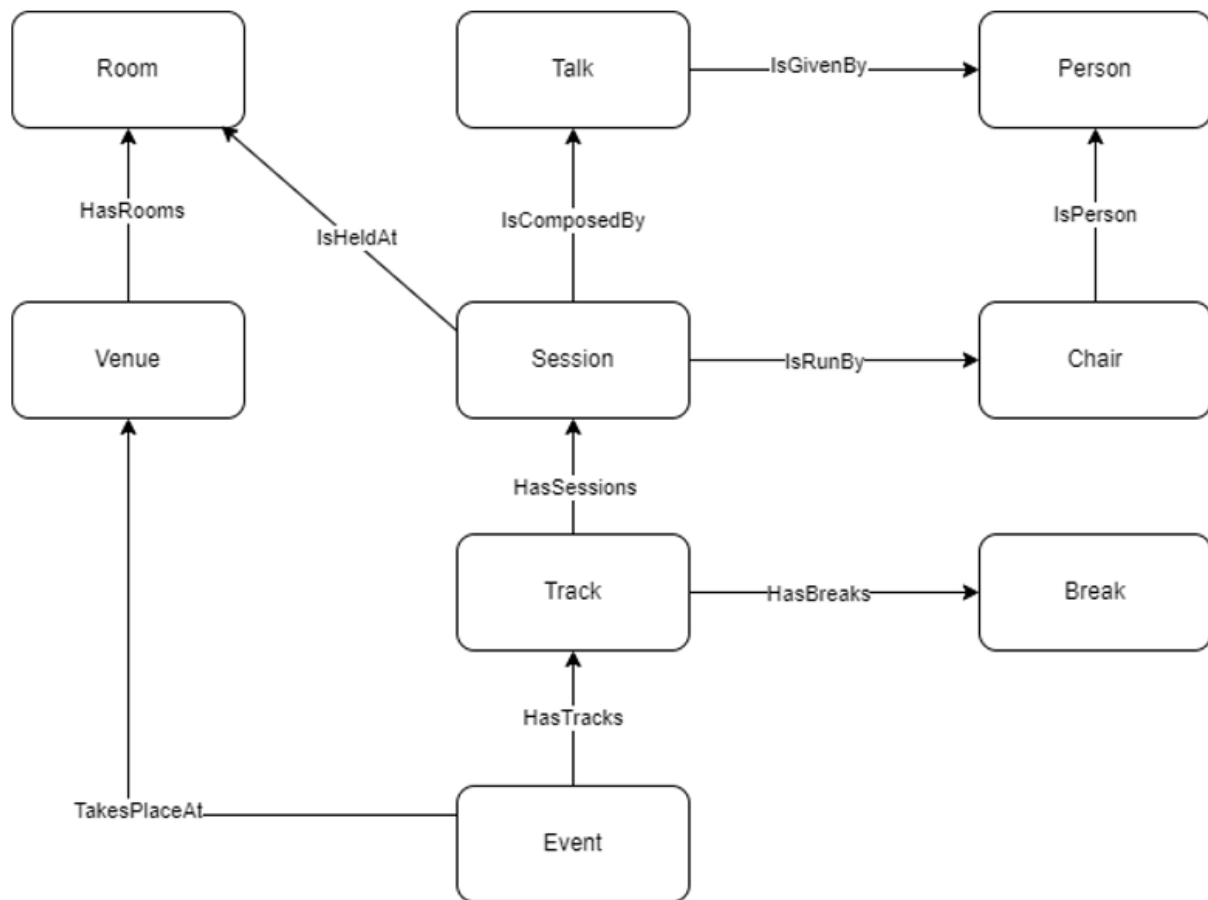
The Structured Content Stack



Domain Model

Domain Model

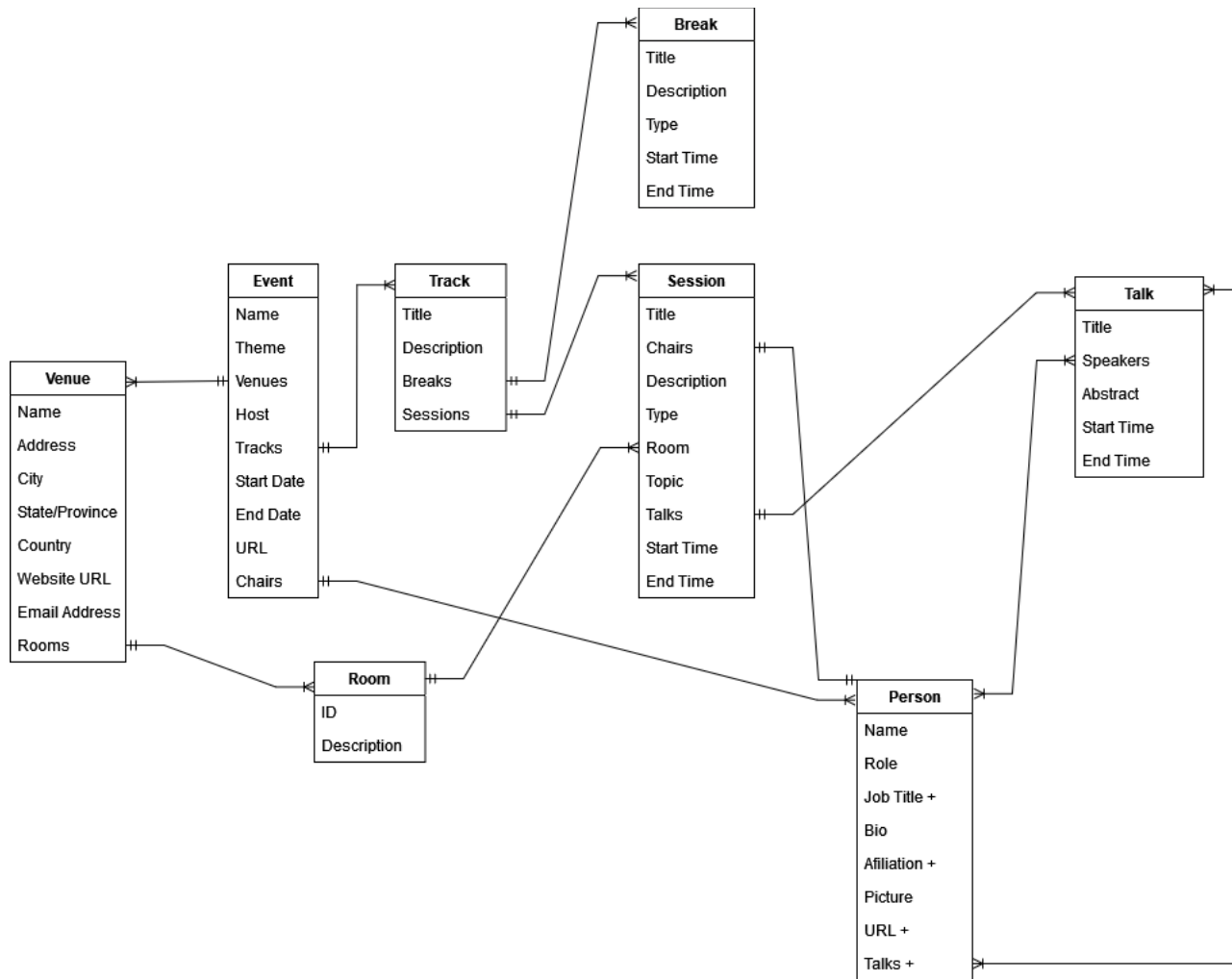
- Conceptual model of the subject domain.
- Shows concepts and their relationships.
- Makes sure the content addresses user needs.
- Gives content structure.



Content Model

Content Model

- Unnecessary objects removed.
- Multiple objects can be combined into one content type.
- Content types define attributes (= characteristic or quality of an object).
- Representation considered for decisions on model.
- Requires a lot of detailed thinking.
- Reconnection of content types.

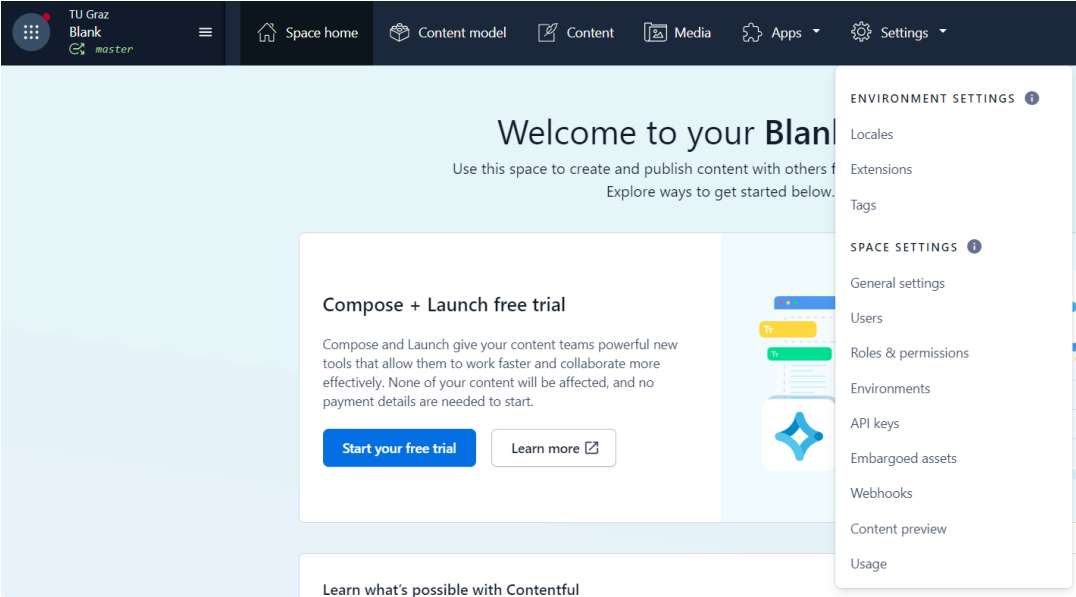


Content Management System

Content Management Systems

- Software used to manage the creation and modification of digital content.
- 2 major components:
 - Content management application (CMA): frontend UI for adding, modifying and removing content.
 - Content delivery application (CDA): backend, which computes the content and updates the website via an API.
- Typical features are:
 - Indexing
 - Search
 - Retrieval
 - Format management
 - Revision control and management

Contentful



TU Graz
Blank
master

Space home Content model Content Media Apps Settings

Welcome to your Blank

Use this space to create and publish content with others
Explore ways to get started below.

Compose + Launch free trial

Compose and Launch give your content teams powerful new tools that allow them to work faster and collaborate more effectively. None of your content will be affected, and no payment details are needed to start.

[Start your free trial](#) [Learn more](#)

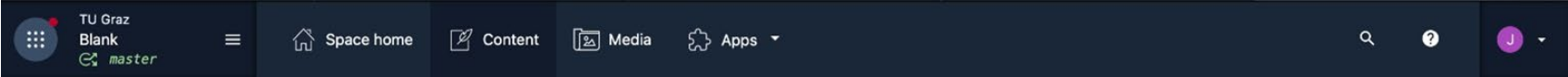
Learn what's possible with Contentful

ENVIRONMENT SETTINGS

- Locales
- Extensions
- Tags

SPACE SETTINGS

- General settings
- Users
- Roles & permissions
- Environments
- API keys
- Embargoed assets
- Webhooks
- Content preview
- Usage

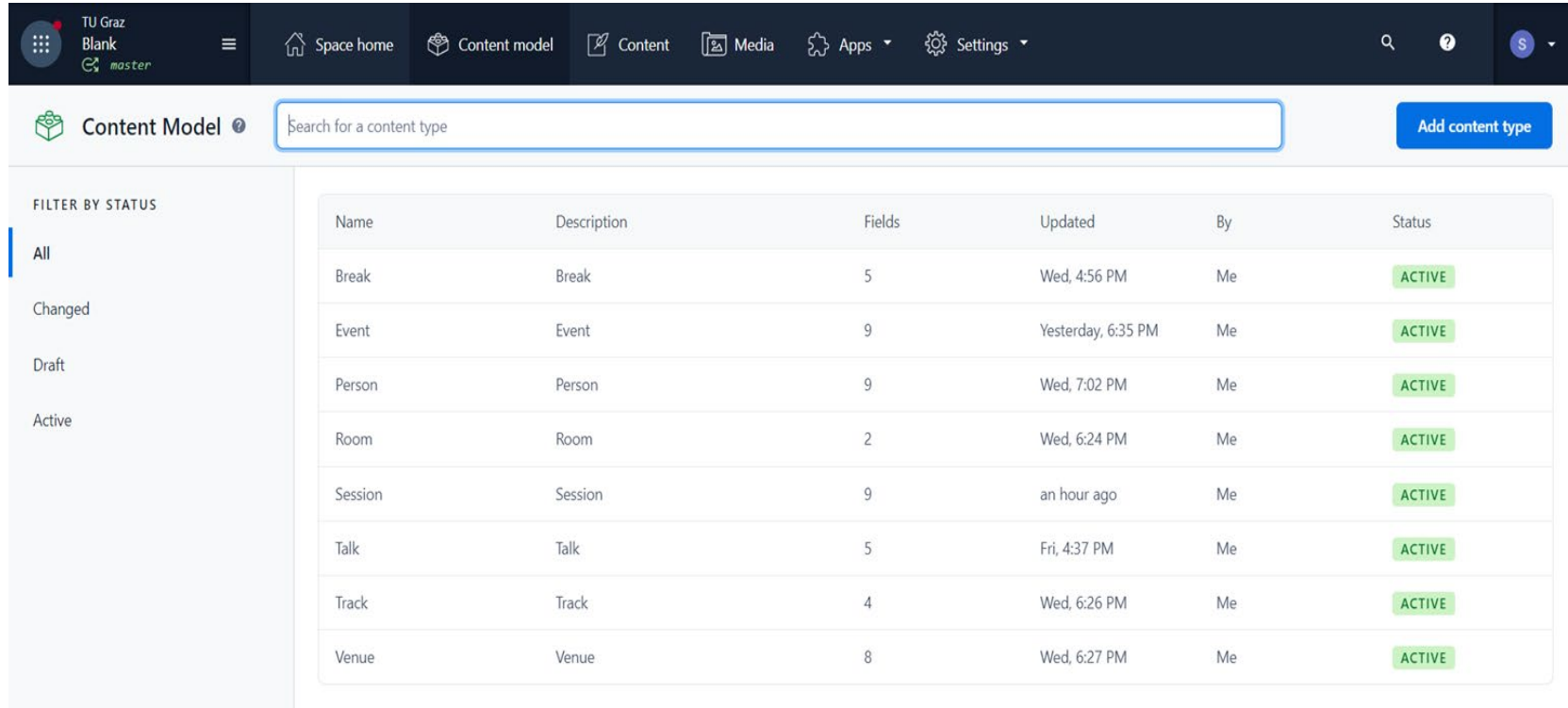


TU Graz
Blank
master

Space home Content Media Apps

Search Help User Profile


Contentful - Content Model (1/3)












The screenshot displays the Contentful Content Model interface. At the top, a dark navigation bar includes the TU Graz logo, a hamburger menu, and navigation links for Space home, Content model, Content, Media, Apps, and Settings. A search bar and user profile icon are also present. Below the navigation bar, the main content area features a search bar labeled "Search for a content type" and an "Add content type" button. On the left, a sidebar titled "FILTER BY STATUS" lists "All", "Changed", "Draft", and "Active". The main area contains a table with the following data:

Name	Description	Fields	Updated	By	Status
Break	Break	5	Wed, 4:56 PM	Me	ACTIVE
Event	Event	9	Yesterday, 6:35 PM	Me	ACTIVE
Person	Person	9	Wed, 7:02 PM	Me	ACTIVE
Room	Room	2	Wed, 6:24 PM	Me	ACTIVE
Session	Session	9	an hour ago	Me	ACTIVE
Talk	Talk	5	Fri, 4:37 PM	Me	ACTIVE
Track	Track	4	Wed, 6:26 PM	Me	ACTIVE
Venue	Venue	8	Wed, 6:27 PM	Me	ACTIVE










Contentful - Content model (2/3)


 **Event** Event

Fields (9) JSON preview Sidebar Entry editors

 Name Short text	Entry title	Settings	...
 Theme Short text		Settings	...
 Venue Reference		Settings	...
 Host Short text		Settings	...
 Tracks References, many		Settings	...
 Start date Date & time		Settings	...
 End date Date & time		Settings	...
 Website URL Short text		Settings	...
 Chair Reference		Settings	...

Add new field

 Rich text Text formatting with references and media	 Text Titles, names, paragraphs, list of names	 Number ID, order number, rating, quantity	 Date and time Event dates	 Location Coordinates: latitude and longitude
 Media Images, videos, PDFs and other files	 Boolean Yes or no, 1 or 0, true or false	 JSON object Data in JSON format	 Reference For example, a blog post can reference its author(s)	

 **Name** Symbol

[Settings](#) [Validation](#) [Default value](#) **NEW** [Appearance](#) ×

- Required field**
You won't be able to publish an entry if this field is empty
- Unique field**
You won't be able to publish an entry if there is an existing entry with identical content
- Limit character count**
Specify a minimum and/or maximum allowed number of characters
- Match a specific pattern**
Make this field match a pattern: e-mail address, URI, or a custom regular expression
- Prohibit a specific pattern**
Make this field invalid when a pattern is matched: custom regular expression (e.g. bad word list)
- Accept only specified values**
You won't be able to publish an entry if the field value is not in the list of specified values

[Confirm](#) [Cancel](#)

Contentful - Content Model - JSON (3/3)

Fields (9) JSON preview Sidebar Entry editors

```
{
  "name": "Event",
  "description": "Event",
  "displayField": "name",
  "fields": [
    {
      "id": "name",
      "name": "Name",
      "type": "Symbol",
      "localized": false,
      "required": true,
      "validations": [],
      "disabled": false,
      "omitted": false
    },
    {
      "id": "theme",
      "name": "Theme",
      "type": "Symbol",
      "localized": false,
      "required": true,
      "validations": [],
      "disabled": false,
      "omitted": false
    },
    {
      "id": "venue",
      "name": "Venue",
      "type": "Link",
      "localized": false,
      "required": true,
      "validations": [],
      "disabled": false,
      "omitted": false,
      "linkType": "Entry"
    }
  ],
}
```

```
    "id": "tracks",
    "name": "Tracks",
    "type": "Array",
    "localized": false,
    "required": true,
    "validations": [],
    "disabled": false,
    "omitted": false,
    "items": {
      "type": "Link",
      "validations": [],
      "linkType": "Entry"
    }
  },
  {
    "id": "startDate",
    "name": "Start date",
    "type": "Date",
    "localized": false,
    "required": true,
    "validations": [],
    "disabled": false,
    "omitted": false
  },
  {
    "id": "endDate",
    "name": "End date",
    "type": "Date",
    "localized": false,
    "required": true,
    "validations": [],
    "disabled": false,
    "omitted": false
  },
  {
    "id": "websiteUrl",
    "name": "Website URL",
    "type": "Symbol",
    "localized": false,
    "required": true,
    "validations": [
      {
        "regex": {
          "pattern": "^(ftp|http|https):\\/\\/([\\w+]{0,1}\\w*)?(\\S+):([0-9]+)?(\\/|\\/\\/|
/([\\w#!:;?+=&%!'\\-\\/]))?$$",
          "flags": null
        }
      }
    ]
  }
}
```

```
{
  "id": "chair",
  "name": "Chair",
  "type": "Link",
  "localized": false,
  "required": true,
  "validations": [],
  "disabled": false,
  "omitted": false,
  "linkType": "Entry"
},
{
  "sys": {
    "space": {
      "sys": {
        "type": "Link",
        "linkType": "Space",
        "id": "x4pz1snfjt0t"
      }
    },
    "id": "event",
    "type": "ContentType",
    "createdAt": "2022-01-11T13:04:46.292Z",
    "updatedAt": "2022-01-17T17:35:23.664Z",
    "environment": {
      "sys": {
        "id": "master",
        "type": "Link",
        "linkType": "Environment"
      }
    },
    "publishedVersion": 25,
    "publishedAt": "2022-01-17T17:35:23.664Z",
    "firstPublishedAt": "2022-01-11T13:04:46.879Z",
    "createdBy": {

```


Static versus Dynamic Websites

Static Websites

- Web pages are returned by the server as prebuilt source code files
- No processing of content on the server
- Fast, as no changes are done on the server
- Cannot be manipulated on server or interact with databases.
- Example for static site generator: Eleventy

Static Site Generator: Eleventy

- Uses independent template engines.
- Content decoupled from host.
- Works with multiple template languages like HTML, Markdown, JavaScript, Nunjucks, Liquid etc.
- Works with any project directory structure.

Dynamic Websites

- Web pages are built during runtime.
- Deploying web pages with help of scripting languages such as PHP, Node.js, ASP.NET etc.
- Updates and interaction with databases are possible
- More commonly used as updates can be done very easily

Conference Website

Eleventy Configuration File: *eleventy.js*

```
const { documentToHtmlString } = require("@contentful/rich-text-html-renderer");
const eleventyNavigationPlugin = require("@11ty/eleventy-navigation");
const dateFilter = require("nunjucks-date-filter");

module.exports = function (eleventyConfig) {
  eleventyConfig.addPassthroughCopy("./src/css");
  eleventyConfig.addWatchTarget("./src/css/");
  eleventyConfig.addShortcode("pathPrefix", () => process.env.MY_PREFIX);
  eleventyConfig.addPlugin(eleventyNavigationPlugin);
  eleventyConfig.addNunjucksFilter("date", dateFilter);
  eleventyConfig.addFilter("renderRichTextAsHtml", (value) =>
    documentToHtmlString(value)
  );
  return {
    dir: {
      input: "src",
      output: "public",
    },
  };
};
```

Utilities File for Contentful-Client: *.env* and *utils.js*

Creating *.env* file to store host-, space-, and access-keys.

Subsequently, they are processed in *utils.js* file

```
require("dotenv").config();

const contentful = require("contentful");
const contentfulClient = contentful.createClient({
  host: process.env.CTFL_HOST,
  space: process.env.CTFL_SPACE,
  accessToken: process.env.CTFL_ACCESSTOKEN,
});

exports.contentfulClient = contentfulClient;
```

Get Entries of Content Type: *persons.js*

```
const client = require('../utils').contentfulClient;

module.exports = async () => {
  // create a request for all entries that match person type.
  const persons = await client.getEntries({
    content_type: 'person',
  });
  return persons.items;
};
```


Get Assets: *images.js*

```
const client = require('../utils').contentfulClient;
const Image = require("@11ty/eleventy-img");

module.exports = async () => {
  await client
    .getAssets()
    .then(function (assets) {
      assets.items.map(function (asset) {
        (async () => {
          var imageURL = 'https:' + asset.fields.file.url;
          let stats = await Image(imageURL, {
            widths: [200],
            formats: ["jpeg"],
            outputDir: "./public/conf/img/",
            filenameFormat: function (id, src, width, format, options) {
              const personName = asset.fields.title;
              const name = personName.replace(" ", "");
              return `${name}.${format}`;
            }
          });
        })()
      });
    })
    .catch(function (e) {
      console.log(e);
    });
});
};
```

Base-Layout File: *layout.njk*

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8">
    <title>{{ title }}</title>
    <link rel="stylesheet" href="../../css/style.css" />
  </head>
  <header>
    {% set navPages = collections.all | eleventyNavigation %}
    <ul>
      {%- for entry in navPages %}
        <li{% if entry.url == page.url %} class="my-active-class"{% endif %}>
          <a href="../../{{ entry.url | url }}">{{ entry.title }}</a>
        </li>
      {%- endfor %}
    </ul>
  </header>
  <body>
    {{ content | safe }}
  </body>
</html>
```

Example Page File: *persons.njk*

```
---
layout: layout.njk
pagination:
  data: persons
  size: 1
  alias: person
  tags: person
  addAllPagesToCollections: true
permalink: "./conf/{{ person.fields.name | slug }}"
eleventyComputed:
  title: "{{ person.fields.name }}"
---
<main>
  <div class="person">
    <h1>{{ person.fields.name }}</h1>
    {% set parsedUrl %} {% pathPrefix %}img/{{person.fields.name}}.jpeg {%endset%}
    {% set finalUrl %}{{ parsedUrl | replace(" ", "" )} {% endset %}
    <img src={{finalUrl}} />
    <p>Job Title: {{person.fields.jobTitle}}</p>
    <p>Bio: {{ person.fields.biography | renderRichTextAsHtml | safe }}</p>
    <p>Affiliation: {{person.fields.affiliation}}</p>
    <a href= "{{person.fields.url}}", target="_blank">Website</a>
    {% for talk in person.fields.talks %}
      <p> Talks given by {{ person.fields.name }}: <br>
      <a href="{{ pathPrefix %}{{talk.fields.topic | slug }}">{{talk.fields.topic}}</a>
    </p>
    {% endfor %}
  </div>
</main>
```

Website Homepage

Home Program Speakers Contact

UX Days 2022

Theme: Computer Science
Host: TU Graz
Venue: [TU Graz- Inffeldgasse](#)
Event Chair: [Maria Rodriguez](#)
Start Date: Jan 23 2022, 08:00 am
End Date: Jan 29 2022, 06:00 pm

Tracks of UX Days 2022

- [Web Optimization](#)
- [Agile Software Development](#)

[UX - Days Website](#)

Website Programm Page

[Home](#) [Program](#) [Speakers](#) [Contact](#)

Programm

Accessibility

Accessibility is the practice of making your websites usable by as many people as possible. We traditionally think of this as being about people with disabilities, but the practice of making sites accessible also benefits other groups such as those using mobile devices, or those with slow network connections.

Chair: [Jaime Martinez](#)

Type: Lecture

Room: [1.1.B20](#)

Topic: Making Websites accessible

Start Time: Jan 26 2022, 09:00 am

End Time: Jan 26 2022, 12:00 pm

Talks:

- [Where does Accessibility start?](#)

Image Formats and Optimization

This session will cover different topics related to images and their import into web pages.

Chair: [Santiago Juste](#)

Type: Keynote

Room: [1.0.A05](#)

Topic: Web design and optimization

Start Time: Jan 26 2022, 01:30 pm

End Time: Jan 26 2022, 04:00 pm

Talks:

- [Image Formats](#)
- [Tools for converting between formats](#)

User Centered Design

User-centered design (UCD) is an iterative design process in which designers focus on the users and their needs in each phase of the design process. In UCD, design teams involve users throughout the design process via a variety of research and design techniques, to create highly usable and accessible products for them.

Chair: [Santiago Juste](#)

Type: Keynote

Room: [1.1.B20](#)

Topic: Web design

Start Time: Jan 27 2022, 08:00 am

End Time: Jan 27 2022, 12:30 pm

Talks:


- [UCD as an Iterative Process](#)

Website Speakers Page

Home Program Speakers Contact

Speakers

Santiago Juste



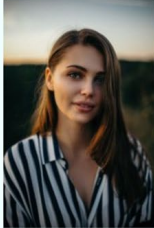
Chair
University professor

Santiago Juste is a university professor from Madrid who has been in charge of the Computer Science department at TU Graz for more than 20 years.

TU Graz
[Website](#)

Talks given by Santiago Juste:
[Where does Accessibility start?](#)

Michaela Meindl




Keynote speaker
CEO

Michaela Meindl is a prestigious Austrian CEO, born in Graz, with international experience in countries such as Ecuador and Spain, where she has stood out for her great management of the groups she has led.

Sony
[Website](#)

Talks given by Michaela Meindl:
[Tools for converting between formats](#)
[Where does Accessibility start?](#)

Jaime Martinez



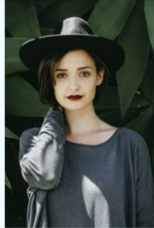
Speaker
Engineer

Jaime Martinez is an experienced engineer born in Madrid, Spain on October 19, 1999. He has been part of numerous successful projects in leading technology companies.

Apple Inc.
[Website](#)

Talks given by Jaime Martinez:
[Image Formats](#)

Maria Rodriguez



Chair
Spokesperson

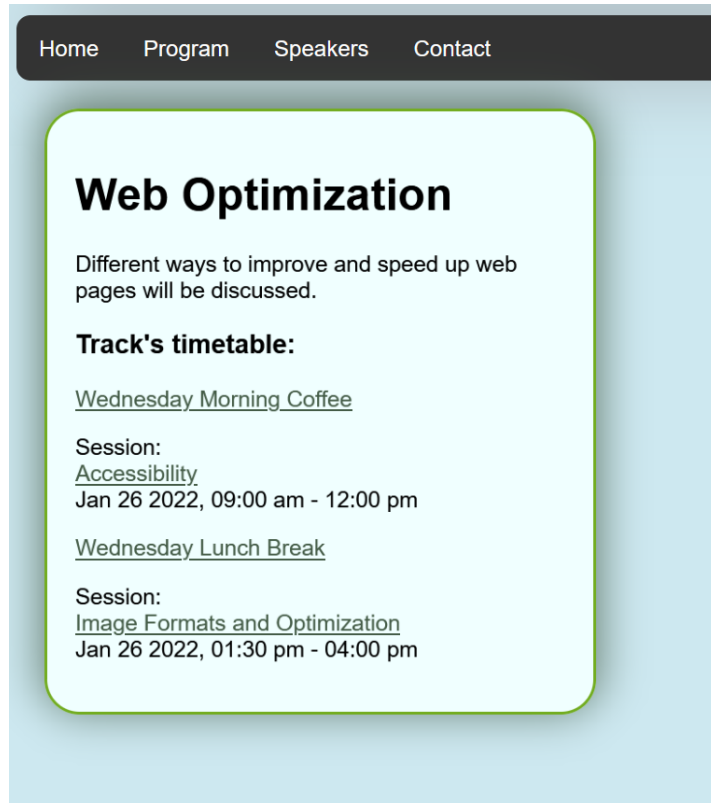
Maria Rodriguez is a speaker known for chairing many well-known events.

She is also currently a presenter of several programs

BBC
[Website](#)

Talks given by Maria Rodriguez:

Website Example Track



The image shows a screenshot of a website track page. At the top, there is a dark navigation bar with the links 'Home', 'Program', 'Speakers', and 'Contact'. Below this is a light blue background with a rounded rectangular content area. The content area has a title 'Web Optimization' in bold black text. Below the title is a paragraph: 'Different ways to improve and speed up web pages will be discussed.' This is followed by a section header 'Track's timetable:' in bold black text. There are two entries in the timetable, each starting with a underlined section header. The first entry is 'Wednesday Morning Coffee', followed by 'Session: Accessibility' and the time 'Jan 26 2022, 09:00 am - 12:00 pm'. The second entry is 'Wednesday Lunch Break', followed by 'Session: Image Formats and Optimization' and the time 'Jan 26 2022, 01:30 pm - 04:00 pm'.

Home Program Speakers Contact

Web Optimization

Different ways to improve and speed up web pages will be discussed.

Track's timetable:

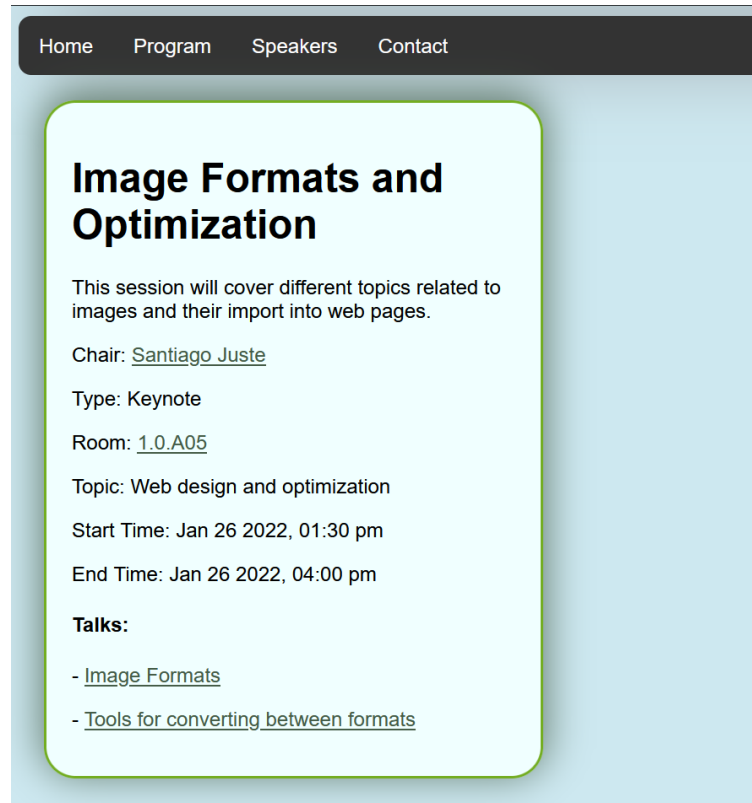
Wednesday Morning Coffee

Session:
Accessibility
Jan 26 2022, 09:00 am - 12:00 pm

Wednesday Lunch Break

Session:
Image Formats and Optimization
Jan 26 2022, 01:30 pm - 04:00 pm

Website Example Session



The image shows a screenshot of a website session page. At the top, there is a dark navigation bar with the links 'Home', 'Program', 'Speakers', and 'Contact'. The main content area has a light blue background and features a white rounded rectangle with a green border. Inside this rectangle, the session title 'Image Formats and Optimization' is displayed in a large, bold, black font. Below the title, there is a paragraph of text, followed by several lines of session details: 'Chair: [Santiago Juste](#)', 'Type: Keynote', 'Room: [1.0.A05](#)', 'Topic: Web design and optimization', 'Start Time: Jan 26 2022, 01:30 pm', and 'End Time: Jan 26 2022, 04:00 pm'. A section titled 'Talks:' follows, containing two bullet points: '- [Image Formats](#)' and '- [Tools for converting between formats](#)'.

Home Program Speakers Contact

Image Formats and Optimization

This session will cover different topics related to images and their import into web pages.

Chair: [Santiago Juste](#)

Type: Keynote

Room: [1.0.A05](#)

Topic: Web design and optimization

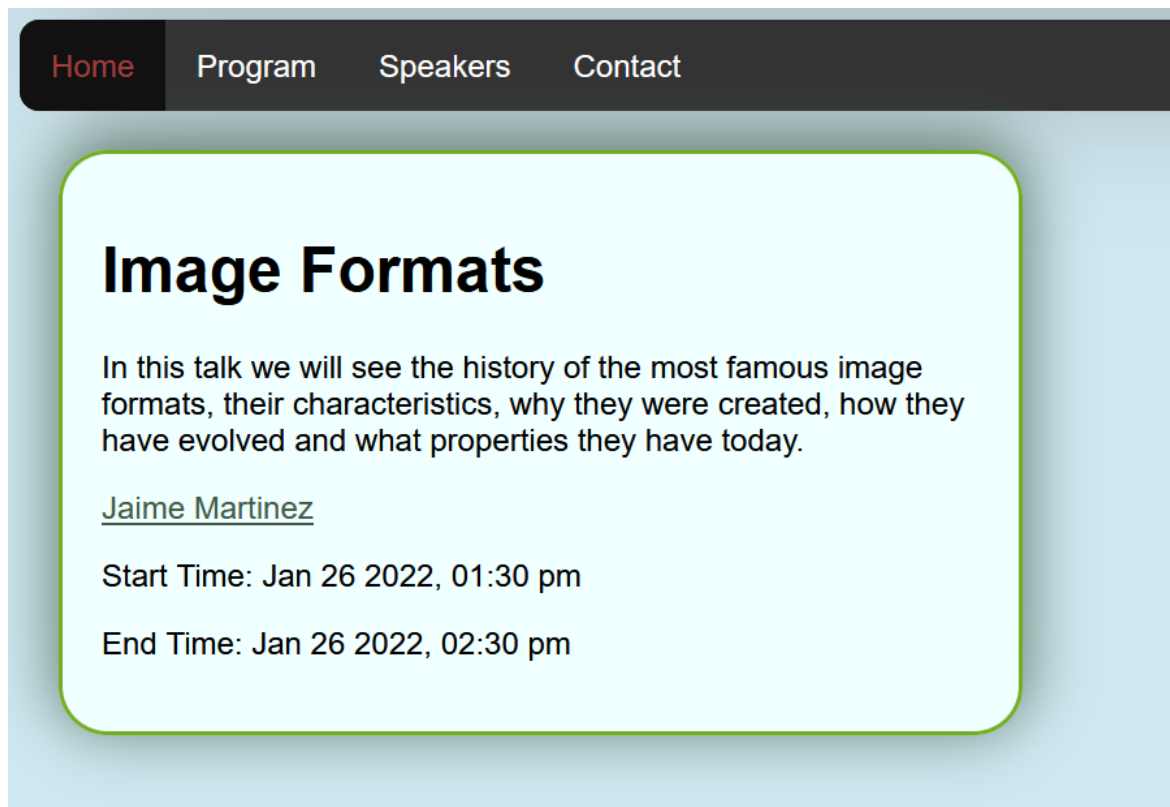
Start Time: Jan 26 2022, 01:30 pm

End Time: Jan 26 2022, 04:00 pm

Talks:

- [Image Formats](#)
- [Tools for converting between formats](#)

Website Example Talk



The image shows a screenshot of a website. At the top, there is a dark navigation bar with four links: 'Home' (highlighted in red), 'Program', 'Speakers', and 'Contact'. Below the navigation bar is a light blue background. In the center, there is a white rounded rectangle with a green border. Inside this rectangle, the title 'Image Formats' is displayed in a large, bold, black font. Below the title, there is a paragraph of text: 'In this talk we will see the history of the most famous image formats, their characteristics, why they were created, how they have evolved and what properties they have today.' Underneath the paragraph, the speaker's name 'Jaime Martinez' is listed with a blue underline. At the bottom of the card, the start and end times are provided: 'Start Time: Jan 26 2022, 01:30 pm' and 'End Time: Jan 26 2022, 02:30 pm'.

[Home](#) [Program](#) [Speakers](#) [Contact](#)

Image Formats

In this talk we will see the history of the most famous image formats, their characteristics, why they were created, how they have evolved and what properties they have today.

[Jaime Martinez](#)

Start Time: Jan 26 2022, 01:30 pm

End Time: Jan 26 2022, 02:30 pm

Conference Website Video

<https://youtu.be/hfMtCr3XQ5I>

Conclusions

- Designing connected content gives structure to the whole project
- Small pieces of content are easily adaptable and reusable
- Separation of responsibilities in teams - still everybody working on the same domain