



Liferay Practitioner - Level 01 - Day 01

Building Enterprise Websites with Liferay

#LIFERAYENABLEMENT

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Some features may not be available in earlier releases.*

Nothing Stays Cool Forever

Old School Liferay, Old School Approach



Sometimes being cool again, isn't as easy as you think

New School Liferay... Old School Approach?



Introduction

Managing Expectations

It has been a while since last in-person training...

- Our students come with various backgrounds: Technical Practitioners such as Developers, Architects, Global Services, Sales & Software Engineers, Technical Support, etc.
- Partners and Liferay
- New with Liferay & years of experience with Liferay
 - ➔ Giving everyone solid foundation and a common baseline
 - ➔ Everything we build can be applied to ANY deployment option

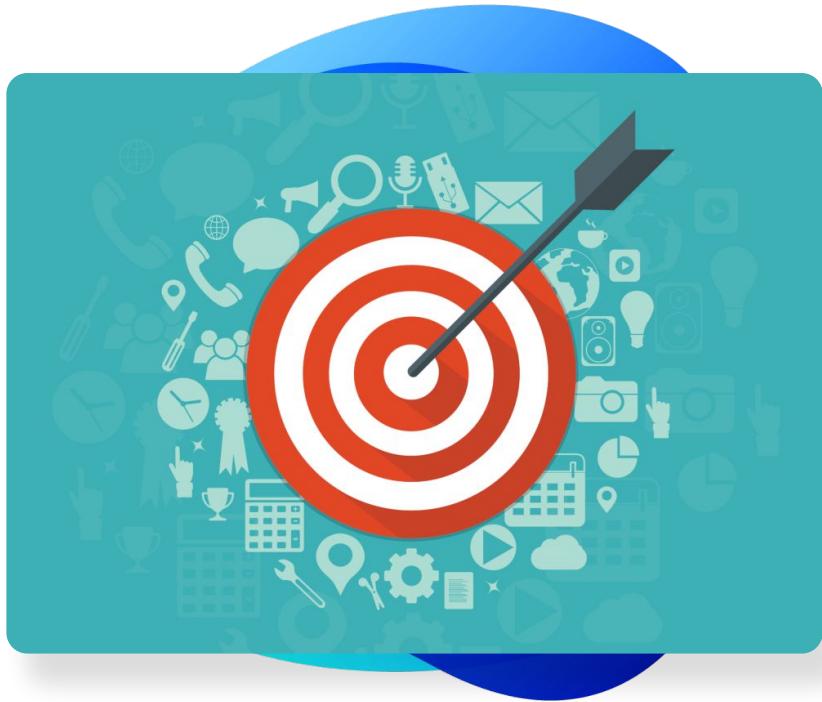


Introduction

Course Objectives

Enabling you to provide maximum value to the customers

- Provide you with the knowledge to plan and implement an Enterprise Website with Liferay DXP
- Understand how to map website designs and business requirements into Liferay features and capabilities
- Learn out-of-the-box -functionalities to ease maintenance and shorten time to market
- Understand different feature options, their benefits and when to use each
- Learn when and how to extend Liferay beyond OOTB
- Understand how to use Liferay provided resources to get answers and learn more



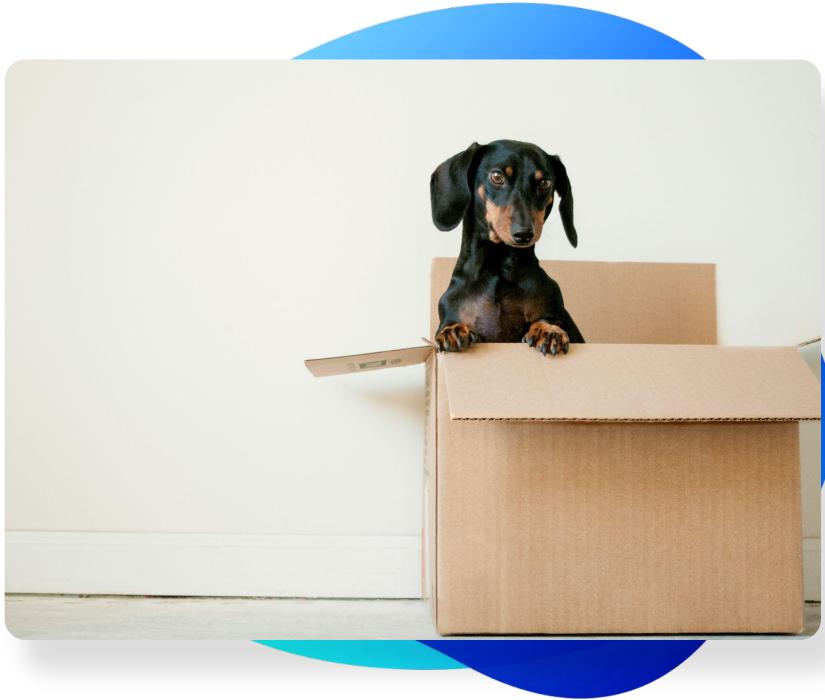
Introduction

Tailor w/ OOTB

Instead of writing custom code take advantage of the wealth of out-of-the-box and low code capabilities Liferay has to offer.

- Business users, e.g. marketers can do it themselves
- Faster time to market
- Increased support coverage and no need for separate documentation
- Easier to maintain, lower upgrade costs and risks

**When a Customer gets more value for their money they are happy.
They renew. They buy more. They recommend.**



Introduction

Where to Learn More

Live webinars, learn.liferay.com, Partner Portal, Alexandria.

- Quarterly release webinars - featured highlights
- Product documentation
- Courses in a self-study format
- Later 2024: Recipes
- Later 2024: Bootcamp content

As partners and Liferay you'll have access to all content in Learn.

Some content is gated → you'll need to log-in with your Liferay credentials (partner portal / Liferay employee).

The screenshot shows the Liferay Learn platform homepage. At the top, there's a dark blue header with the Liferay logo, a search bar, and navigation links for 'Capabilities', 'Products', and 'Courses'. Below the header, a large banner reads 'Welcome to Liferay Learn' with the subtitle 'Practical resources for learning Liferay'. A search bar with a magnifying glass icon is positioned below the banner. The main content area features a grid of cards, each representing a different capability or product. The cards include: 'Cloud' (Use Liferay's Cloud infrastructure to launch your solutions more quickly and securely), 'Content' (Manage orders with enriching product information, easy ordering tools, and product recommendations), 'Content Management System' (Create, publish, and manage content, pages, and multimedia across different channels faster), 'Development and Tooling' (Use set-of-the-box features and development tools to deliver solutions to user faster), 'Digital Asset Management' (Deliver assets to any channel by managing, organizing, and publishing them in one place), 'DXP Self-Hosted Installation, Maintenance, and Administration' (Deploy, configure, and maintain Liferay DXP on your own infrastructure), 'Integration' (Unify systems, applications, and data with a single platform), 'Personalization' (Deliver more personalized and relevant content through enhanced segmentation, AI-generated recommendations, and A/B testing), 'Platform' (Send email notifications, test content updates, deliver solutions across multiple channels, and more with out-of-the-box platform features), 'Search' (Save users time with personalized, integrated, and organized search results), 'Security' (Protect users, data, and solutions with a platform designed with security in mind), and 'Sites' (Deliver customized pages and sites on any device or channel). Each card has a small icon and a brief description.



What comes out of the box?

Liferay DXP Platform Capabilities



Content Management System (CMS)



Digital Asset Management (DAM)



Commerce



Personalization



Search



Sites



Integration



Security



Cloud



Low-Code

Bootcamp Roadmap

1

Setup + Structure

- Setup our development environment
- Introduce our case study – Clarity Vision Solutions
- Work through the process of creating the baseline structure of the public enterprise site.

2

Content + Data

- Working with AI, Taxonomies, Content Structures, and Commerce
- Importing content with headless APIs
- Extending Liferay with the new Objects features
- Managing preview, editorial process and governance with Publications + Workflow

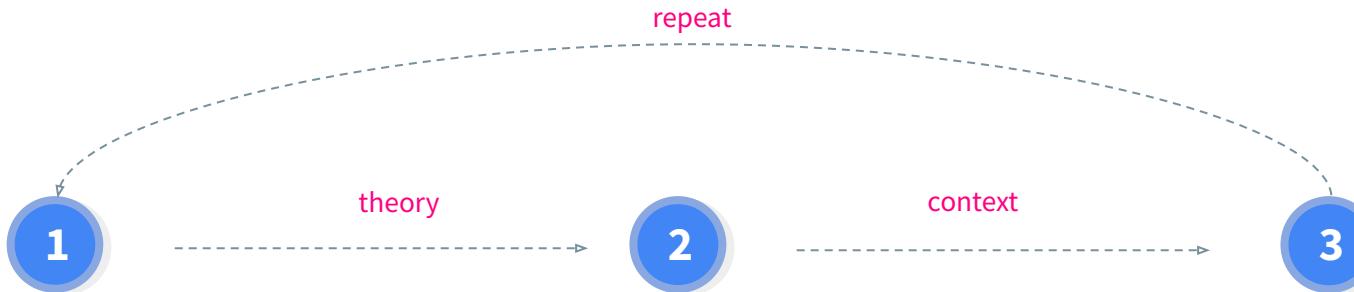
3

Level Up + Maintenance

- Put the finishing touches on the site that will take it to the next level. This includes personalization of content, pages and search results.
- Look at ongoing maintenance activities such as performance tuning, troubleshooting and how to work with updates.



Lesson Structure



Understanding

Presentation and instructor led discussion with references to Case Study and real world examples

Demo

Demonstration of feature and functions included in the instructor led discussion

Exercise

Self-directed exercise with application of topics that were discussed

22 lessons over 3 days



Building Enterprise Websites Bootcamp

Bootcamp Lesson Topics

- | | | |
|---|--|---|
| <input type="checkbox"/> Case Study | <input type="checkbox"/> Asset Management | <input type="checkbox"/> Publications and Workflow |
| <input type="checkbox"/> Deployment Options and Workspace | <input type="checkbox"/> Web Content Structures | <input type="checkbox"/> Search Basics |
| <input type="checkbox"/> Security and Permissions | <input type="checkbox"/> Content Display and Mapping | <input type="checkbox"/> Search++ with Blueprints |
| <input type="checkbox"/> Site Management | <input type="checkbox"/> Integrating with AI | <input type="checkbox"/> Building Applications with Objects |
| <input type="checkbox"/> Analytics Cloud | <input type="checkbox"/> Classifying Content with Taxonomies | <input type="checkbox"/> Client Extensions |
| <input type="checkbox"/> Pages and Page Templates | <input type="checkbox"/> Understanding Collections | <input type="checkbox"/> Segmentation and Experiences |
| <input type="checkbox"/> Menus and Navigation | <input type="checkbox"/> Commerce | <input type="checkbox"/> Performance Tuning and Mgmt. |
| <input type="checkbox"/> Fragments and Design Elements | <input type="checkbox"/> Headless APIs | <input type="checkbox"/> Certification Exam |





<https://certmanager.liferay.com/>



Demo: Quick Tour of Liferay UI

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Day 01 | Agenda

- | | | |
|------------|----|--|
| 30:00 mins | 01 | Case Study and Design Exploration |
| 30:00 mins | 02 | Capabilities, Deployment Options and the Liferay Workspace |
| 45:00 mins | 03 | Security: Users, User Groups, Roles and SSO |
| 15:00 mins | 04 | Site Management: Settings, Analytics, Pages, and Menus |
| 50:00 mins | 05 | Fragments and Design Elements |
| 15:00 mins | 06 | Asset Management and Web Content |
| 10:00 mins | 07 | Mapping Content to Display |



Lesson 01

Clarity Case Study and Design Exploration

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01/ Clarity Case Study

Clarity Use Case

Clarity Vision Solutions

- Global leader in optical technology
- Over 500 employees and 300+ million in revenues
- Traditional retail and online commerce
- Modern, stylish and comfortable products
- International distribution via partners

Elevate Your Brand with Premium Eyewear

Discover premium craftsmanship, innovative lenses, and designs that help your brand stand out.

[Start Your Journey](#)



See Further with Clarity Vision Solutions

Take advantage of exclusive offers on the latest products to deliver exceptional value for your business and your customers.

[Learn More](#)



Clarity Vision Solutions Challenges

- Overnight success has led to growing pains
- Complex and fragmented infrastructure
- Expensive maintenance and licensing costs
- Increased operational costs by requiring costly resources (experts and consultants)
- Highly technical tools limit pool of contributors and increase the time to market required for new initiatives



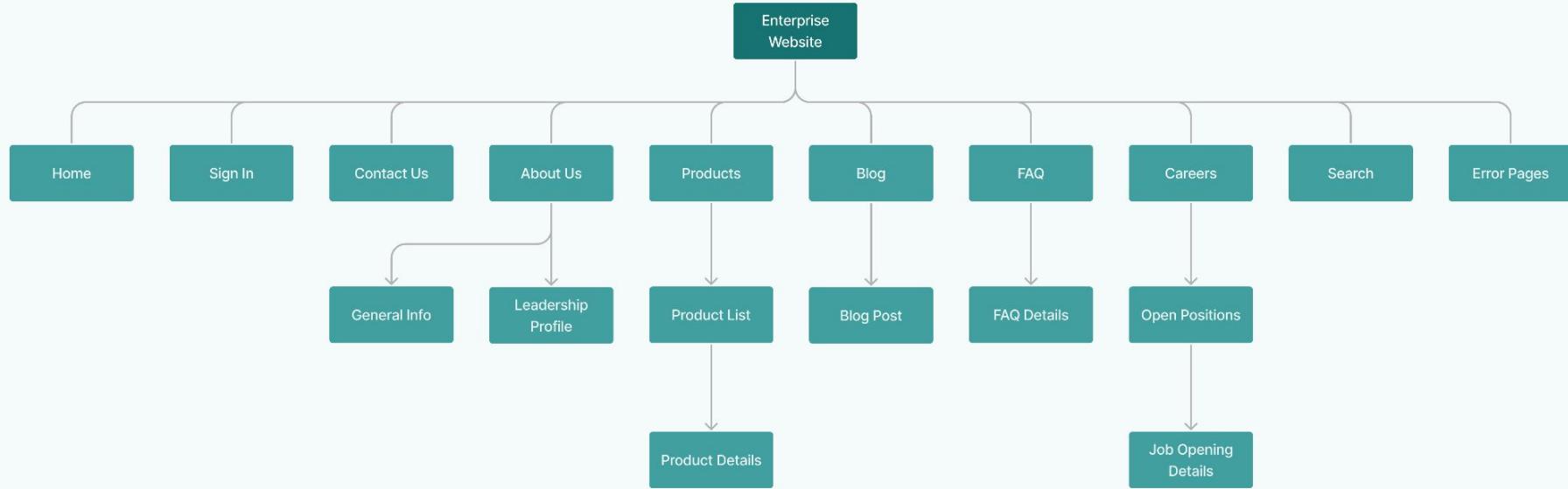
Clarity Critical Success Factors

1. Non-technical participation
2. Simplified maintenance (and evolution)
3. Future proofed and flexible
4. Increase engagement and user experience through personalization
5. Risk mitigation with better governance
6. Lower investment / total cost of ownership



02/ Design Exploration

Enterprise Website Design

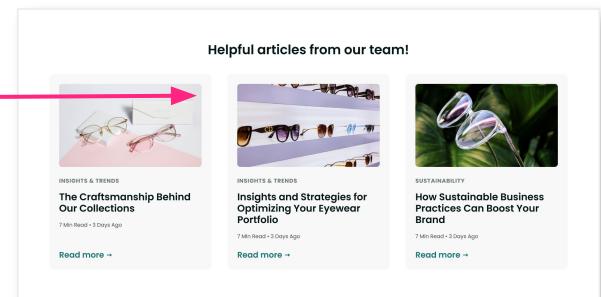
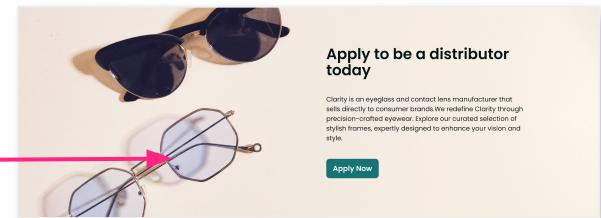
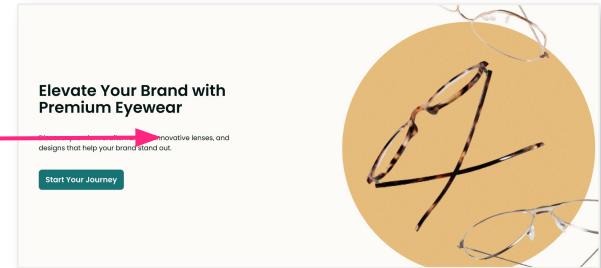
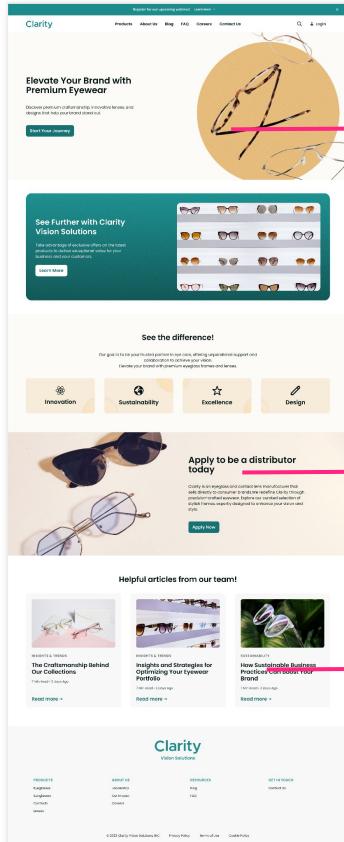


Clarity Enterprise Redesign

Home Page

Create and manage first impressions with ease by empowering non-technical resources to do the work while adhering to corporate brand and messaging.

- Clean minimalist design with eye-catching crisp images
- Immediate engagement with call to action in hero
- Strategically push distributor program with highlighted area



Clarity Enterprise Redesign

Blog

Create fresh and dynamic content areas of the site that capture the attention of the audience, increasing engagement and increasing conversion.

- Clean, simple, attractive design
- Provide pagination and filtering to allow user to find content relevant to them
- Offer users option to *Subscribe* to receive new content (login required)
- Only allow images approved by marketing

The screenshot displays the Clarity website's blog section. At the top, there is a navigation bar with links for Products, About Us, FAQ, Careers, Contact Us, and Log In. Below the navigation, a banner features the headline "Innovations in Eyewear Technology: Beyond Clear Vision" with a "Read More" button. A red arrow points from the "Read More" button on the main banner to a similar "Read More" button on a smaller card below it. To the right of the banner, there is a grid of eyeglasses images. The main content area contains several cards with headlines like "The Craftsmanship Behind Our Collections" and "Insights and Strategies for Optimizing Your Eyewear Portfolio". A large green call-to-action button at the bottom encourages users to "Subscribe for the Latest Trends & More!" with a "Subscribe" button. Another red arrow points from the main banner's "Read More" button to this green button. The footer includes the Clarity logo, links for Products, About Us, Address, and Get in Touch, along with small text for Privacy Policy, Terms of Use, and Customer Support.



Clarity Enterprise Redesign

Product Listings

Easily surface products to users by creating well understood and intuitive user experiences out of the box in minutes.

- Create an intuitive search like experience
- Provide rich filtering mechanism to allow users to reach their desired results quickly
- Simple results grid to keep with a clean simple design
- No extraneous content that might distract user from buy-path

The screenshot displays the Clarity product listing interface. At the top right is a search bar with a magnifying glass icon. Below it is a sidebar with three sections: 'Color' (with 'Black' and 'Blue' checked), 'Material' (with 'Plastic' and 'Metal' unchecked), and 'Fit' (with 'Extra Narrow' and 'Narrow' unchecked). A pink arrow points from the 'Color' section to the 'Black' and 'Blue' filter checkboxes. Another pink arrow points from the 'Fit' section to the 'Extra Narrow' and 'Narrow' filter checkboxes. The main content area shows a grid of eyeglasses products. Each product card includes a small image, the name (e.g., 'Feruza Black', 'Maliyah Blue', 'Fleurette Rose'), and a 'View All' link. The bottom of the page features a footer with links for Products, About Us, Blog, FAQ, Careers, Contact Us, and Log In, along with copyright information and links to Privacy Policy, Terms of Use, and Cookie Policy.



Clarity Enterprise Redesign

FAQs

Lower operation support costs by providing a simple to use and simple to manage self-service model.

- Organized by popular topics drawn from supported by analytics data
- Enable self-service to reduce (operational) support costs
- Managed content to eliminate the need to have IT make manual changes/deployments every time change is required

Clarity

Products About Us Blog **FAQ** Careers Contact Us

General FAQs

RETAIL PARTNERS

How can I become a distributor for Clarity Vision Solutions?
Visit our distributor inquiry page and share details about your company, experience, and market reach. Our dedicated team will review your application and contact you to discuss potential opportunities and answer any questions. We value collaboration and seek passionate partners who share our commitment to exceptional vision care. We look forward to hearing from you!

What sets Clarity apart from its main competitors in terms of product features, technology, and sustainability practices? +

What are the growth opportunities available to distributors who partner with Clarity Vision Solutions? +

PRODUCT & SERVICES

What are the range of products you offer? +

What certifications or safety standards do your products meet? +

Where can I find training and marketing resources to help understand and promote Clarity products? +

PRICING & ORDERING

What is your pricing model? +

What are your payment terms for product purchases? +

Do you have a minimum order quantity for distributors? +

RETURN AND EXCHANGE

What is your guarantee and return policy? +

You got questions.
We've got answers.

Helpful articles from our team!

INSIGHTS & TRENDS
The Craftsmanship Behind Our Collections
7 Min Read • 3 Days Ago
[Read more →](#)

INSIGHTS & TRENDS
Insights and Strategies for Optimizing Your Eyewear Portfolio
7 Min Read • 3 Days Ago
[Read more →](#)

SUSTAINABILITY
How Sustainable Business Practices Can Boost Your Brand
7 Min Read • 3 Days Ago
[Read more →](#)



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Careers

Simplify recruitment by connecting and working directly with candidates, eliminating costly third party services.

- Advertise open positions and reduce recruitment costs
- Build a database of candidates that can be referenced as needs arise
- Provide multiple filters so that users don't have to wade through irrelevant data
- Include analytics to understand how many users come to this section and what the engagement rate is

The screenshot shows the Clarity website's careers section. At the top, there is a navigation bar with links for Products, About Us, Blog, FAQ, Careers (which is highlighted in blue), and Contact Us. To the right of the navigation is a search icon and a login link. Below the navigation, a large banner features a woman in a yellow blazer holding a tablet, with the text "Join the Team!" above a search bar labeled "Search Jobs".

On the left side, there is a "Filter Positions" sidebar with two sections: "Region" and "Location". The "Region" section includes checkboxes for Asia Pacific, Europe, Latin America, and North America, along with a "View All" link. The "Location" section includes checkboxes for Brazil (Recife, São Paulo), Colombia (Bogotá), Ireland (Dublin), Italy (Vimercate), and Japan (Tokyo), also with a "View All" link. In the center, there are four "Job Position" cards, each with a "Location | Region" link below it. At the bottom right of the main content area, there is a "Sort by: Date" dropdown menu.

78 Open Positions

Sort by: Date ▾



Clarity Enterprise Redesign

Distributor Applications

Streamline the process of finding and approving new distribution partners through a self-service application.

- Receive distributor applications
- Collect identity information for KYC best practice and compliance with AML laws
- Implement complex business logic, including validations, notifications, and workflow
- Easy to build and maintain

Clarity

Products About Us Blog FAQ Careers Contact Us

International Distributor Application

Step 1 Step 2 Step 3 Step 4 Step 5

General Details

Applicant Name*

Applicant Email



Apply to be a distributor today

Clarity is an eyeglass and contact lens manufacturer that sells directly to consumer brands. We redefine Clarity through precision-crafted eyewear. Explore our curated selection of stylish frames, expertly designed to enhance your vision and style.

Apply Now

We have received your application! An associate will contact you shortly. You can review and update your application at any time by clicking the links below.

[View My Applications](#) [Go to Home Page](#)







Demo: Clarity Public Enterprise Site (complete)

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Exercise #1: Exploring Clarity's Public Enterprise Website

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Lesson 02

Liferay Capabilities, Deployment Options and the Liferay Workspace

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03/ Liferay Capabilities

Platform Capabilities



Content Management System (CMS)



Digital Asset Management (DAM)



Commerce



Personalization



Search



Sites



Integration



Security



Cloud



Low-Code



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04/ Deployment Options

Liferay Deployment Options

Overview



Liferay Self-Hosted

- Customer has complete ownership and responsibility
- Hardware and infrastructure
- Architecture + Platform-related software and configuration
- Preparation, management, and deployment of updates, patches, and security hotfixes for the entire stack
- Solution development



Liferay PaaS

- Web Server
- Backups
- Search Engine
- Database
- DevOps CI/CD Pipeline



Liferay SaaS

- Product support
- Application Uptime SLA
- Platform Software
- Cloud Architecture and Infrastructure
- Upgrades and Updates
- Patches and Security hotfixes
- DDoS Detection and much more





Liferay
Self Hosted

or



Liferay
PaaS

or



Liferay
SaaS

Which one should we use?



Liferay Deployment Options

Liferay SaaS First

Liferay SaaS empowers customer to rapidly deploy a secure digital platform with minimal IT resources, allowing customer to focus on core business initiatives.

- **Faster Time to Value:** Get up and running with Liferay without managing hardware and software setup
- **Reduction in IT burden:** Liferay handles infrastructure, security and maintenance freeing customer's IT team for more valuable tasks
- **Automatic Updates:** Benefit from continuous updates, latest capabilities and bug fixes without manual intervention
- **Scalability:** Liferay SaaS scales automatically to meet customer needs, eliminating infrastructure headaches



Liferay SaaS allows the delivery team to ***focus on delivering more business value*** rather than maintaining infrastructure and supporting applications.

05/ Liferay Workspace

Bootcamp Requirements

Wait! I thought Clarity had decided to use Liferay SaaS as a deployment option? Why am I working on my local machine?

- Simulated SaaS Environment
- Local copy of all data and exercises you can keep
- Compatible with all operating systems students might have
- Self-Contained
- Avoiding possible network bandwidth challenges in varying bootcamp conditions



Clarity Business Requirements

- Empower Clarity's limited IT staff to develop faster and more efficiently
- Support the ability to customize the look and feel of existing functionality and to align that look and feel with corporate branding and style guidelines
- When necessary, develop full-blown applications that take advantage of Liferay user management, security, and other features.
- Support both frontend and backend developers using a variety of languages and technologies



Introduction to Liferay Workspace

Centralized solution management that supports the full development life cycle across multiple environments. Promotes team based development for all levels of solution contributors.

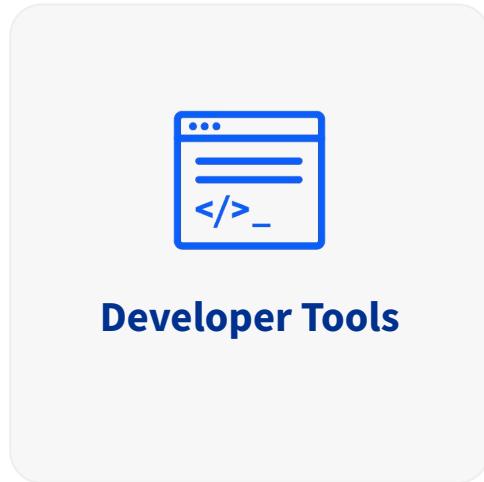
- A Liferay Workspace is an environment specifically designed to manage your Liferay projects
- Typically represent a 1-to-1 where one project leverages one workspace
- Creates a standard structure and approach which is beneficial in team based environments
- Self encapsulating – can contain code and runtime
- Simplifies the process of building plugins and extensions through pre-configured tasks and automations
- Supports the full Lifecycle development: Create, Build, Test and Deploy



Benefits of Liferay Workspace

Empowers developers to deliver consistent results across teams by providing the tools that are necessary to accelerate Liferay development with minimal Liferay expertise.

- **Increased Development Efficiency:** Streamlined project management, automation through Gradle, and pre-configured properties all contribute to faster development cycles and reduced development effort
- **Improved Collaboration:** Liferay Workspace facilitates collaboration among developers by providing a centralized platform for managing and sharing project resources.
- **Enhanced Consistency:** Standardized project structures and configurations within the workspace help maintain consistency across different Liferay modules and applications
- **Simplified Testing:** Workspace integration with Docker allows for efficient setup of various development, user acceptance testing, and production environments, facilitating thorough testing processes



Developer Tools



Demo: Liferay Workspace Walkthrough

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Exercise #2: Verifying and Launching Liferay Workspace



Lesson 03

Security and Permissions

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Security and Permissions

Clarity Business Requirements

- Provide secure access for Clarity employees
- Leverage existing Identity Management and Single Sign-On Solutions
- Ensure employee information stays up-to-date
- Follow principle of least privilege
- Make user management accessible to non-technical parties
- Accommodate future growing user bases with a scalable yet flexible system
- Provide all users necessary and appropriate means of interacting with the platform
- Promote reusable user segments and reduce user management time and costs



** Liferay Trust Center / Data Protection <https://www.liferay.com/trust-center/data-protection>



06/ Authentication and Identity Management



Authentication

and



Authorization



Introduction to Identity Management

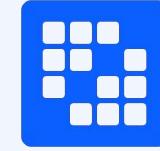
- Identity Management (IdM) ensures the right people have access to the right resources
- Single Sign On (SSO) is an authentication scheme that allows users to log in to multiple resources with the same credentials
- Liferay provides robust IdM and SSO capabilities out of the box
- Liferay also provides integration with industry leading providers
- Liferay supports a mix of different IdM and SSO services to support diverse audiences





External
Authentication

or



Liferay
Authentication



Security and Permissions

Security Service Integrations

LDAP



SAML



SSO

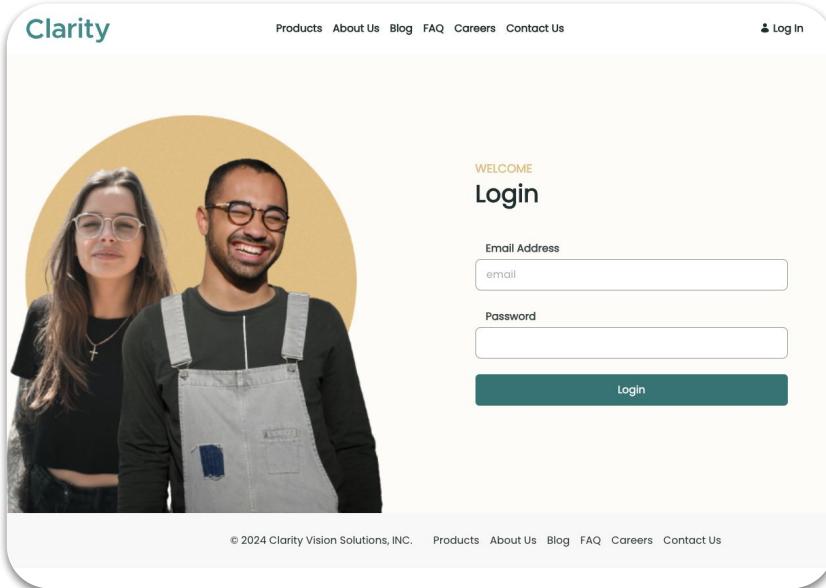


Security and Permissions

Basic Authentication

Basic authentication offers some business benefits "out of the box" in Liferay DXP. Great for a quick start but not ideal over the long term.

- Great accelerator to get up and running quickly
- Boilerplate functionality available day 1 with no need for development
- Include a vanilla “Default” *Sign In* Widget
- User credentials stored in Liferay Database
- Initial credentials for Liferay SaaS shared during provisioning process



Security and Permissions

OpenID Connect

Implementing OpenID Connect in Liferay DXP can significantly enhance user experience, improve security, and streamline administrative tasks, leading to a more efficient and user-friendly platform for your organization.

- Standards-based protocol allowing user to authenticate using existing credentials
- Example providers include Google, Facebook, Microsoft, Apple, GitHub, etc.
- Removes need for custom development

The screenshot shows the 'Add' configuration screen for an OpenID Connect provider. On the left, a sidebar lists various authentication methods: Facebook Connect, OpenID Connect (selected), OpenSSO, Token Based SSO, HTTP Client Factory Configuration, SAML Configuration, SAML KeyStoreManager Implementation Configuration, VIRTUAL INSTANCE SCOPE (selected), OpenID Connect Provider Connection (highlighted in blue), and SAML Provider Configuration. The main panel has several input fields:

- Provider Name:** A text input field with placeholder text "Set the name for the OpenID Connect provider."
- Scopes:** A text input field containing "openid email profile".
Description: "Set the scopes Liferay will request during authentication. Scopes are delimited with spaces."
- Discovery Endpoint:** A text input field.
Description: "Set the discovery endpoint for the OpenID Connect provider. If this is set, manually set endpoints will be ignored."
- Discovery Endpoint Cache in Milliseconds:** A text input field containing "360000".
Description: "Discovery endpoint metadata will be cached on this interval in milliseconds. If 0 is set, the metadata is never refreshed."
- Authorization Endpoint:** A text input field.

A status message at the top right says: "Info: This configuration is not saved yet. The values shown are the default."



Security and Permissions

SAML, SSO and IDMS

SAML solutions have a number of business benefits from centralized management and streamlined processes to support for multiple providers promoting a flexible and scalable model that can adapt as business needs change.

- Security Assertion Markup Language (SAML) is an open-standard used for authentication
- Identity Provider (IdP) contains users & credentials
- Service Provider (SP) is the application being authenticated to
- Frequently used to support Single Sign-On (SSO) and Single Logout (SLO) functionality
- Usually used with an Identity Management System (IDMS)
- Can allow for a single “authentication” task granting user access to multiple systems

The screenshot shows the Liferay System Settings interface for Single Sign-On (SSO). The left sidebar lists several configuration options under 'SYSTEM SCOPE': Facebook Connect, OpenID Connect, OpenSSO, Token Based SSO, and HTTP Client Factory Configuration. The 'SAML Configuration' option is selected, highlighted with a blue border. The main content area is titled 'SAML Configuration' and contains the following fields:

- Key Store Path:** \${liferay.home}/data/keystore.jks
- Key Store Password:** liferay
- Key Store Type:** jks
- SSO Session Check Interval:** 60
- Runtime Metadata Refresh Interval:** 300
- Replay Cache Duration:** 3600000
- Authentication Request Check Interval:** 60

Each field includes a descriptive subtitle below it. A note at the top of the page states: "Info: This configuration is not saved yet. The values shown are the default."



Security and Permissions

Okta for Authentication and SSO

Integrating Okta with your Liferay DXP instance can offer a range of business benefits that improve security, user experience, manageability, and potentially reduce costs.

- Clarity uses Okta for Identity Management
- Okta provides SAML support for SSO
- Okta will act as the Identity Provider (IdP)
- Liferay will act as the Service Provider (SP)
- Using external authentication is generally regarded as a best practice





Demo: Configuring Liferay + Okta

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07/ Authorization

Security and Permissions

User Management and Organization

User management lets you control who can access your portal, assign permissions, and organize users for easier administration. This improves security, personalized experiences, and simplifies content management.

- The end goal of user management is to ensure that users have the right privileges and accesses to the platform
- Users on a platform have varied responsibilities and titles (i.e. managers, employees, customers, partners, etc.)
- Liferay's fundamental user entity is its User
- Users can be imported from other identity providers, created through administrative tools in Liferay, or self-serviced through account creation





Security and Permissions

Clarity Internal Users



Ian Miller

IT Manager



Walter Douglas

Web Developer



Clara Murphy

Marketing Manager



Christian Carter

Marketing Coordinator



Harper Roberts

HR Specialist



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Security and Permissions

Roles

Liferay roles simplify user management, grant granular access control, and ensure users only see and do what they're allowed to within the portal, boosting security and efficiency.

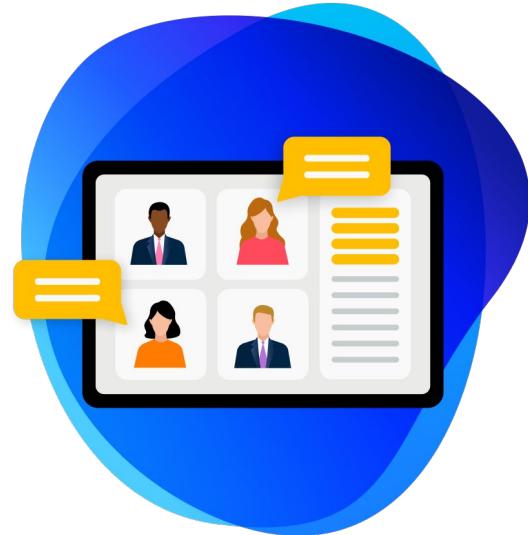
- User management is built on top of a permissions framework
- Liferay's permission framework is built around **roles** and **permissions**
- Users are assigned roles, and roles can be customized to grant various permissions and privileges
- Users can be assigned multiple roles that correspond with their responsibilities or permissions
- Roles are logical separations of responsibilities that make user management intuitive
 - e.g. Administrators are able to alter user records. Adam is an administrator. Therefore, Adam is able to alter user records.



Users and User Groups

User Groups simplifies administration by allowing a single Role assignment to be implicitly applied to all members of the user group.

- The user is the fundamental entity that interacts with Liferay's platform
- User groups are user-created segments of users that represent commonalities, responsibilities, or other shared features between users
- Managing users with user groups tends to fall into one of three common use cases:
 - Collecting permissions
 - Managing site membership
 - Managing users' personal pages
- User groups are LDAP-compatible, meaning groupings from LDAP systems can be mapped to Liferay User Groups



Roles and Permissions

Roles and Permissions in Liferay DXP grant fine-grained control over user access, ensuring users can only see and do what they're authorized for. This improves security, compliance, and administrative efficiency.

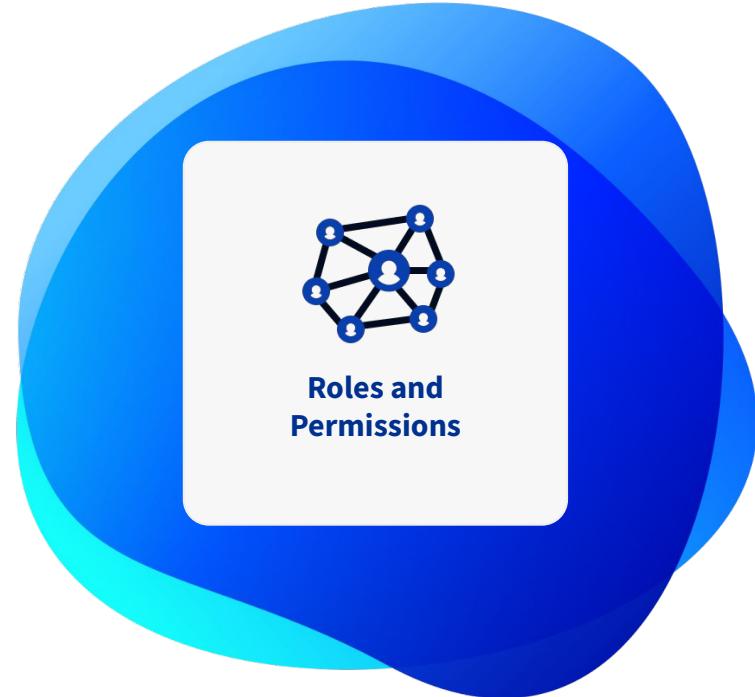
- Roles are collections of permissions. They are related by a *has-a* or *has-many* relationship
 - e.g. The Administrator role has the permissions to edit and update users
- Permissions are the individual checks that grant a user access to an action or resource
- Users or user groups and roles are related by a *has-a* or *has-many* relationship
 - e.g. Adam has a Administrator role
 - e.g. The “Content Management” User Group has a Content Manager role
- Creating roles promotes *reuse* in permissions structure, and discourages direct assignment of permissions to users
- Permissions are *additive* and *not exclusionary*



Role Scopes

Roles have different scopes, allowing for a finer level of control on the permissions of users based on their context within the solution.

- **Regular Role** - instance-wide [most expansive] permission scope, often given to users who need administrative access
- **Site Role** - permissions that are scoped per site; assigning them follows principle of least privilege
- **Organization Role** - permissions that are scoped to a particular organization, sometimes the in-between level of regular and site roles
- **Asset Library Role** - permissions attached specifically to shared resources; collects access to various categories of assets under asset library
- **Account Role** - collections of permissions given to users of accounts, used to customize user experience for external parties



Security and Permissions

Configuring Permissions

Users and Organizations

APPLICATION PERMISSIONS ?

- Action
- Access in Control Panel
- Configuration
- Export User
- Permissions
- Preferences
- View

RESOURCE PERMISSIONS ?

USER

- Action
- Activate
- Deactivate
- Delete
- Impersonate
- Permissions
- Update
- View

Permissions

Search for

Role

Analytics Administrator

Guest

Owner

Portal Content Reviewer

Power User

Publications User

Site Content Reviewer

Site Member

User

View	Add to Page	Configuration	Permissions	Preferences
<input type="checkbox"/>				
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>				
<input type="checkbox"/>				
<input type="checkbox"/>				
<input type="checkbox"/>				
<input type="checkbox"/>				
<input type="checkbox"/>				
<input type="checkbox"/>				
<input type="checkbox"/>				
<input type="checkbox"/>				
<input type="checkbox"/>				

Associated with roles
(the application functions)

Associated with resources
(the data)



Configuring Permissions (cont.)

The screenshot shows the 'Users and Organizations' management interface. At the top, there are tabs for 'Users' and 'Organizations', with 'Users' selected. Below the tabs are filters ('Filter and Order'), a search bar ('Search for'), and a toolbar with icons for export, manage custom fields, and add new users.

A red dashed box highlights a context menu with two options: 'Export Users' and 'Manage Custom Fields'. To the right of this box, the text 'Application permissions' is written, indicating that these options apply to the entire application level.

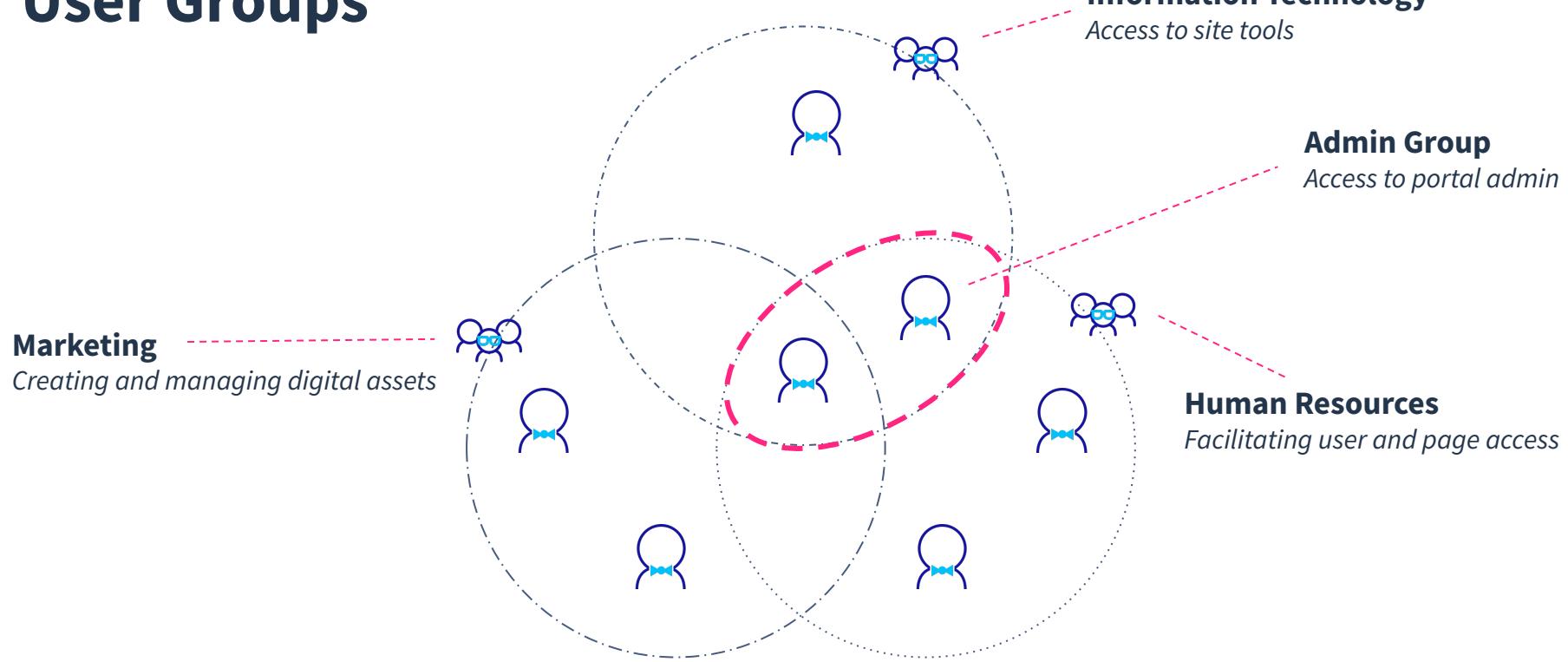
Below the toolbar, a table lists user information. The columns are: Name, Screen Name, Job Title, Organizations, and User Groups. A row for a user named 'Test Test' is shown, with the 'Screen Name' field containing 'test' and the 'User Groups' field containing 'Test group 1'. This row is highlighted with a green dashed box, and to its right, the text 'Resource permissions' is written, indicating that these options apply specifically to the resource level.

Name	Screen Name	Job Title	Organizations	User Groups
Test Test	test			Test group 1



Users and groups

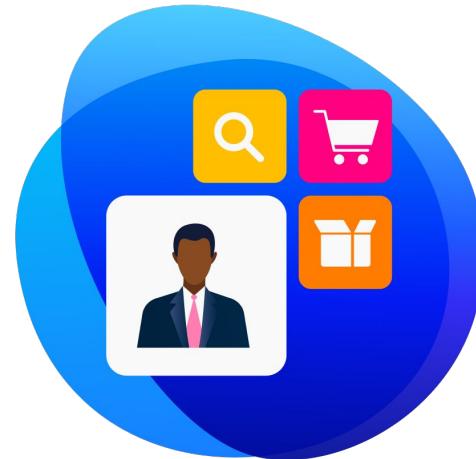
User Groups



Security and Permissions

Designing Role Architecture

- Start by listing out responsibilities (roles)
- Evaluate responsibilities and scope them into the 4 categories of roles, Regular, Site, Organization, or Asset Library-related, according to principle of least privilege
- Match scoped role-responsibilities to user groups
- Optionally, factor out shared groups of permissions to reduce duplicate permissions
- There is no singular right solution





Demo: Users, User Groups and Roles

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Some features may not be available in earlier releases.*



Exercises #3a - #3d: Defining Users and Permissions





Bonus Challenge

Challenge

Set up a management group that has the authority to configure permissions for their team members.

Requirements

- One user with elevated rights to set permissions
- User cannot hold the *Administrator or Site Administrator Role*

Success Criteria

The assigned user is able to assign permissions to their team members.



Lesson 04

Site Management: Settings, Pages, and Menus

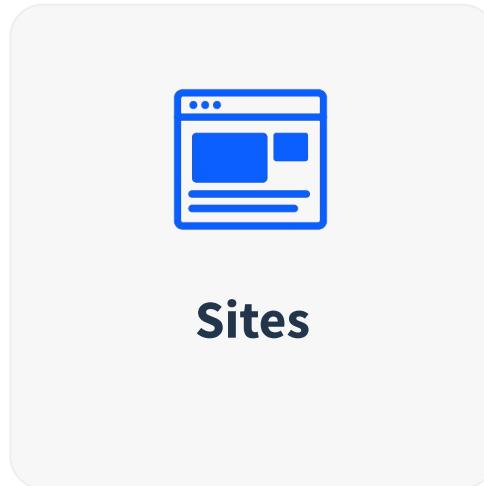
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What do we mean by *Site Building* and why is it important?

Introduction to Site Building

- Term used both generically and broadly to describe “web sites”
- Focuses on enabling non-technical to manage create web sites and web based applications without deployment
- Deals with the structure and framework that acts as the foundation for web based solutions
- Leverages important concepts like Information Architecture and User Experience to provide best-in-class results
- Critical to be done right to ensure a solid foundation for the evolution of the solution used to support the business



Sites





Clarity Business Requirements

- Define common layout elements in a master page to ensure consistency across all site pages
- Accelerate page design with reusable, drag-and-drop page elements
- Ensure sites are accessible and usable by everyone
- Simplify design implementation and maintenance for a consistent brand identity and user experience across sites
- Implement a publishing workflow for site changes
- Have multiple languages in the site due to its expansion to non-english speaking countries.



08/ Site Initialization

Site Initialization

Understanding Instances

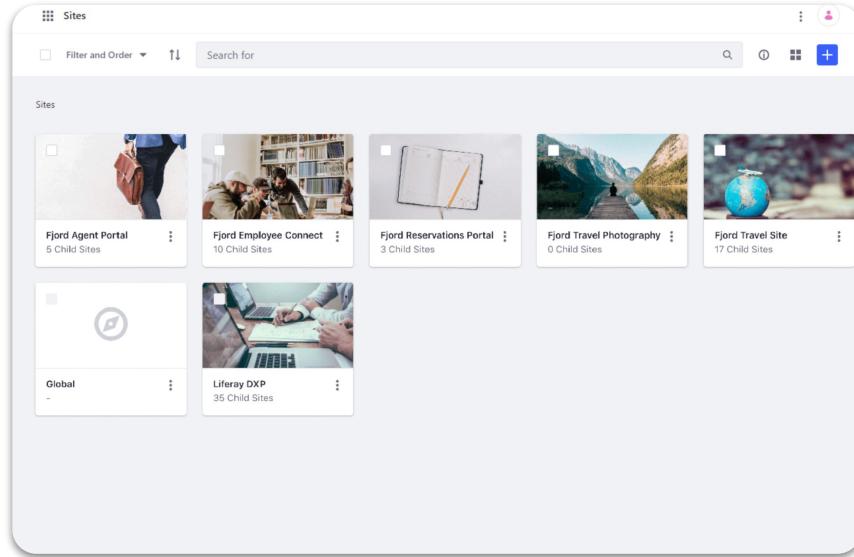
- Virtual Instances (formerly *Portal* Instances) allows for more than one domain to be associated with a single Liferay environment
- Multiple “Liferay Deployments” each with its own content. Users and configurations – all running from a single server
- Facilitates the sharing of common resources like code, themes, widgets while simultaneously reducing software and hardware (physical resource) demands
- Can be managed by the **Administrator** via the Control Panel
- Can be considered a bucket that is used to house one or more sites – great option for expansion without new costs



Site Initialization

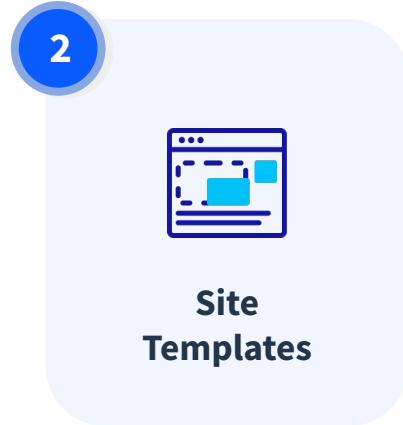
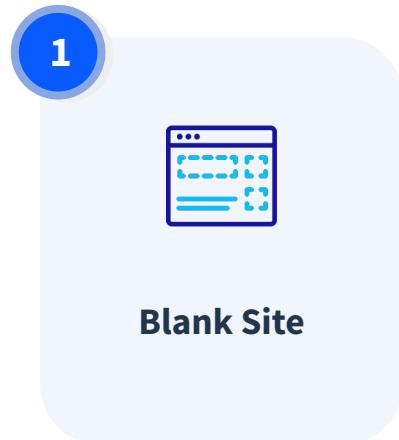
Understanding Sites

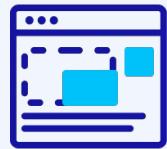
- Users can create and manage sites and their respective audiences – memberships and roles
- Each site gets its own set of pages, content, permissions, etc.
- Each site can have its own look and feel via Style Books, Client Extensions and Page Templates
- If required, content can be shared across sites, and is recommended to be done through Asset Libraries
- Site Templates allow predefined sets of pages to be used as a starting point for new sites
- Site Initializers go one step further providing a programmatic way to spin up sites



Site Initialization

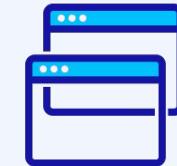
Site Starter Options





**Site
Templates**

or

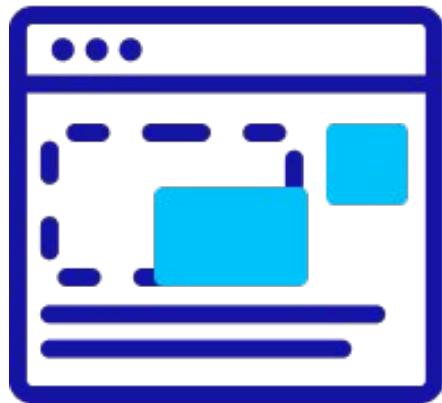


**Site
Initializers**



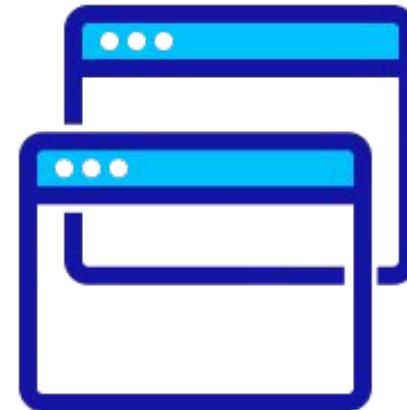
Site Templates

- Site templates provide pre-built layouts and functionalities
- Ensure that all pages on your website adhere to your brand guidelines, creating a consistent and professional user experience
- By using pre-designed templates, you can avoid the need to pay for custom development work
- You don't need to rely on developers to make changes to your website
- Often designed with accessibility best practices in mind, ensuring that your website is usable by everyone
- Changes to the template itself, which will automatically update all of the pages that use that template



Site Initializers

- Define different Site Initializers for various website types or sections
- Reduce the time and effort required to create new sites by automatically generating core content
- Integrate with CI/CD pipelines for automated site deployments, streamlining your development and release process
- Manage entire sites with a single configuration file, simplifies content updates and maintenance compared to individual element management
- Leverage Git version control for your Site Initializers, enabling tracking changes and collaborative development





**Site
Templates**

or



**Site
Initializers**

Which one should we use?



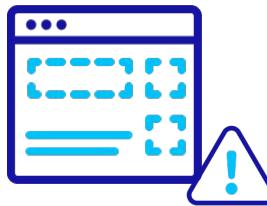
09/ Site Settings and Configurations

Types of Sites



Open

Public Access



Restricted

Request Access



Private

Invitation Only

Site Initialization

Site Configurations

- Offer granular level of control across several areas of the site from *General Settings* to *Security* options
- Settings are unique and scoped on a site-by-site basis allowing for different settings on different properties
- Settings can be exported to physical files allowing you to source control and provision different settings for different environments / targets
- Several category sections offering fine tuning over different areas of the product
 - **Platform**
 - **Content & Data**
- Defaults should always be reviewed but some are more critical than others



10/ Site Memberships



Meeting our Personas

Clarity Internal Users



Ian Miller

IT Manager



Walter Douglas

Web Developer



Clara Murphy

Marketing Manager



Christian Carter

Marketing Coordinator



Harper Roberts

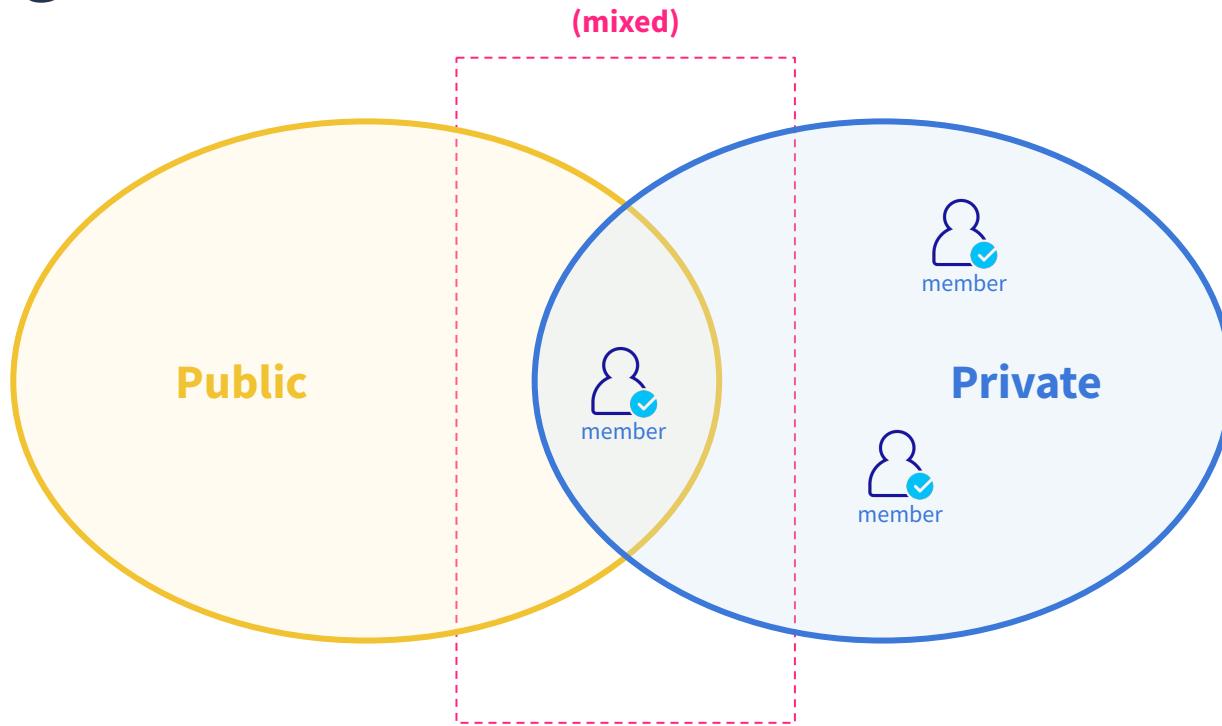
Human Resources



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Site Memberships

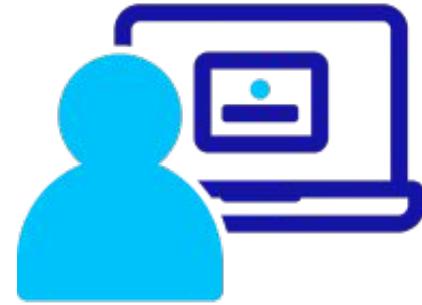
Accessing Resources



Site Memberships

Security via Membership and Roles

- Top level form of Security – in sites that are not *open membership* is only allowed for users who are members
- This has historically been referred to as *private pages*
- Memberships can be a direct association between User Account and the site or User Group and the site
- For *Protected* and *Private* sites, pages are automatically protected (no Guest Access) and authentication is required
- Unauthenticated users will get 404 error by default
 - There is a setting you can adjust that will instead route the user to the login screen (old behavior)
- Users can be members of one or more sites
- Membership roles can change from site to site





Demo: Site Initialization and Configurations

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Exercises #4a - #4c: Site Creation and Configuration



Analytics Cloud

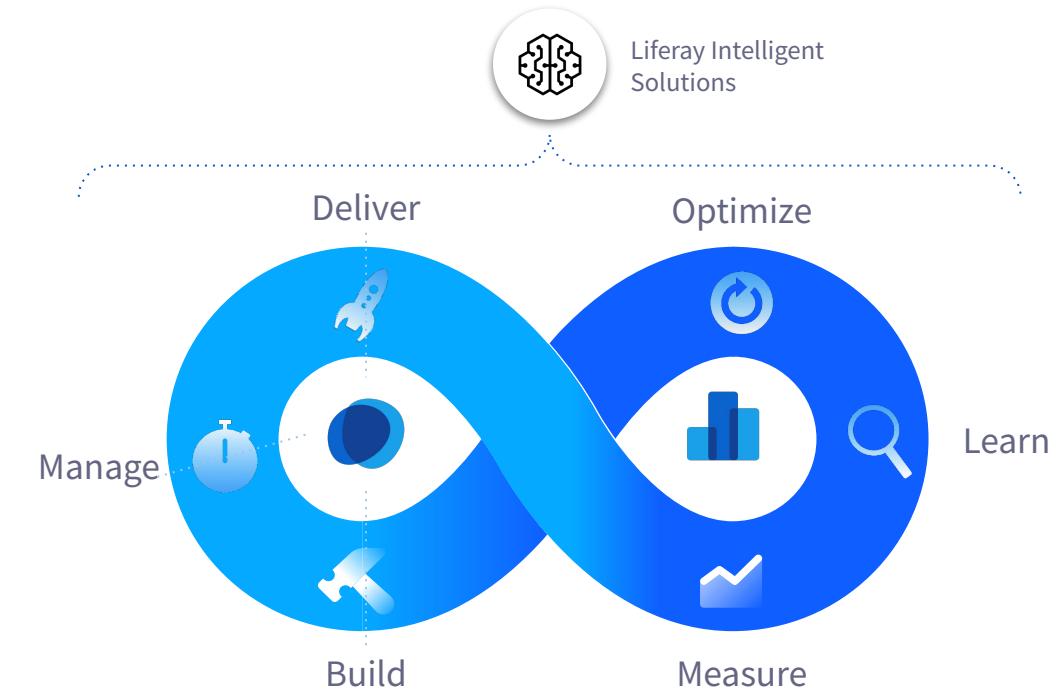
Lesson 05

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Analytics Capabilities

A Complete Solution



Register for our upcoming webinar! [Learn more](#)

Clarity

Products About Us Blog FAQ Careers

Elevate Your Brand with Premium Eyewear

Discover premium craftsmanship, innovative lenses, and designs that help your brand stand out.

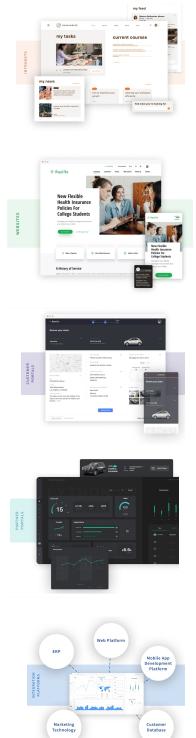
[Start Your Journey](#)

See Further with Clarity



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Measure, Learn and Optimize



Measure and Learn

Understanding the DX performance

Measure and learn what is performing well and what needs to be fixed.

- Site level
- Page level
- Asset (content) Level

Understanding the audience

Understand the behavior of the visitors of your digital experience (employees, customers, partners).
What are (not) they interested in?

Optimize

Putting Data into Action

Use data to perform actions to influence, change or reinforce an audience behavior.

- Personalization
- A/B Testing

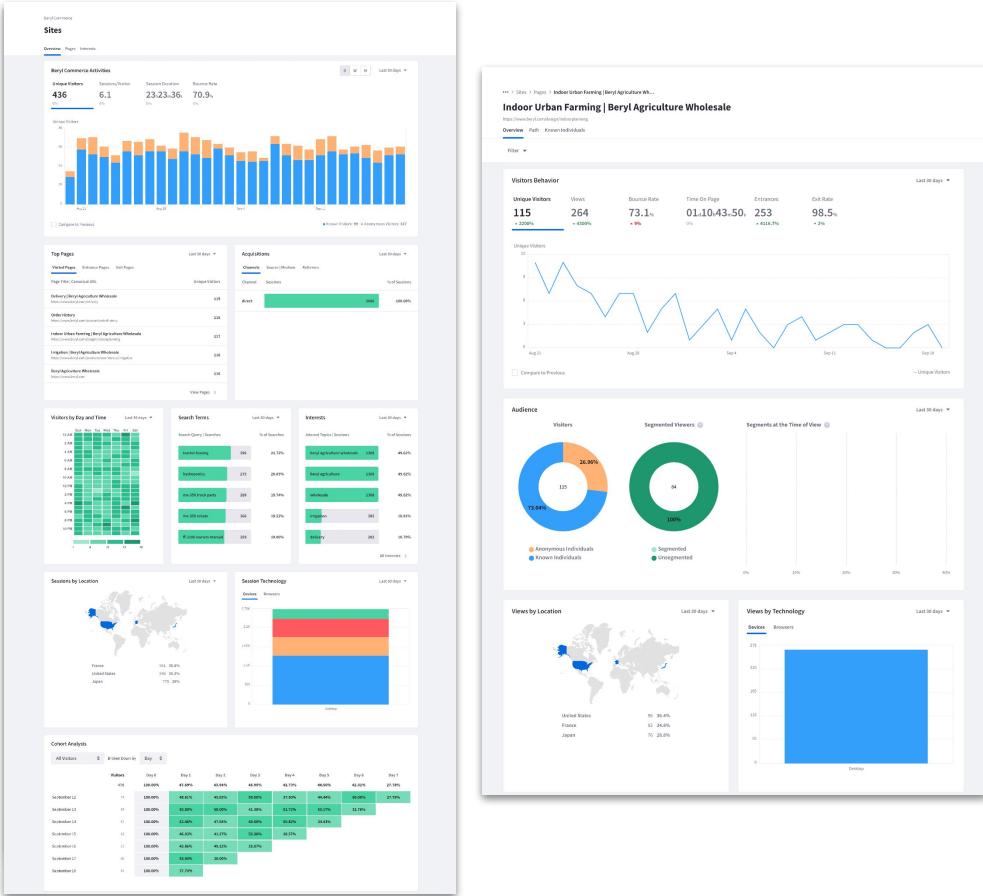


Analytics Capabilities

Analytics Capabilities

Analytics provides the business with continuous feedback that can be used to fine tune solution to maximize investment.

- Measure how your known and anonymous users interact with the different portals you are publishing.
- Site, page and content level metrics without the need for advanced tagging.
- Full integration with Liferay DXP for direct visualization of performance.
- Advanced segmentation capabilities to optimize in Liferay DXP



Analytics Capabilities

A/B Testing

Maximize engagement with your audience by choosing the best experience for your site's users based on real data.

- Simplified tools and approach to provide the best user experience holistically or by user segment
- Perform optimization experiments with A/B testing right out of the box
- Seamless integration between Liferay products
- Configure A/B tests to run for a specific period of time
- Configure system behaviors such as the ratio of traffic that will route to A versus B
- Promote the winner with a single click

The screenshot displays the Liferay A/B Testing interface. At the top, a banner宣布 "Winner Declared" (Started: April 1, 2023, Stopped: April 15, 2023) and states that the "Hero CTA - end effector" has outperformed the control by at least 12%. Below this, a large image of a graffiti mural features a central banner with the text "I know what you need". To the right, a detailed variant report is shown, comparing the Control (34%) and the Hero CTA - end effector (33%). The report includes a chart showing medians per day and a table of performance metrics for both variants. On the right side of the interface, a sidebar provides details about the active test, including the goal (Click), confidence level (95%), and the element being tested (#fragment-vxzy-link). It also shows the variants (Control, Graffiti Variant, Change Buttons Style) and a button to terminate the test.

Beryl Corporate Intranet > A/B Test > Home CTA - end effector

Home CTA - end effector

Report

Winner Declared
Started: April 1, 2023 Stopped: April 15, 2023

Hero CTA - end effector has outperformed control by at least 12%.

This is a simple banner component that you can use when you need extra attention to featured content or

Variant Report

Medians Per Day

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

● Control ● Variant One

Varants ↑

	Bounce Rate	Confidence Interval	Improvement	Probability to win	Unique Visitors
Control	42%	21% - 34.7%	▼ 0% loss	7%	456
Hero CTA - end effector	28%	34.8% - 48.5%	▲ 12% lift	93%	456

PUBLISHED

A/B Test

Active Test
Special Offers
History (0)

DUCTS B2B SHOP

Segment: Anyone
Goal: Click
Confidence Level: 95%

CLICK GOAL
Element: #fragment-vxzy-link

VARIANTS
Control 34%
Graffiti Variant 33%
Change Buttons Style 33%

Terminate Test





Demo: Clarity Analytics Cloud Dashboard

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Lesson 06

Working with Pages and Page Templates

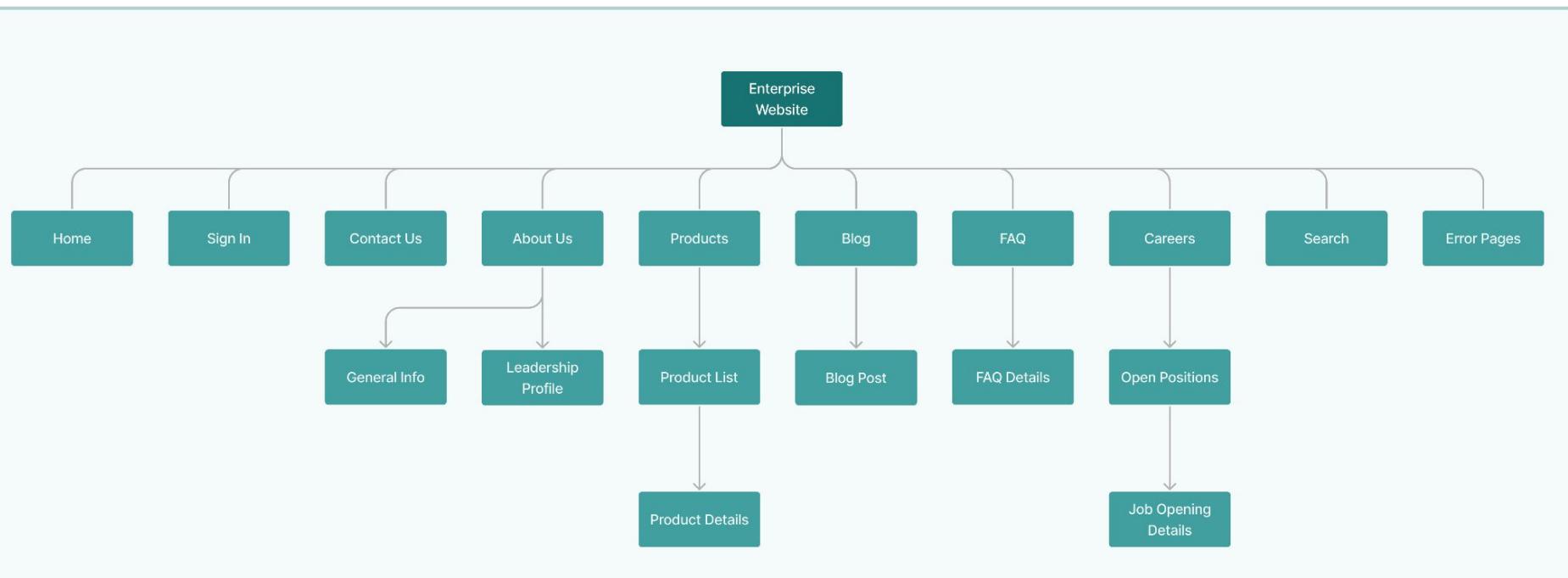
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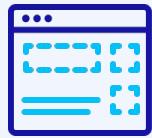


11/ Pages and Page Types

Pages and Page Templates

Clarity Pages





**Widget
Pages**

or

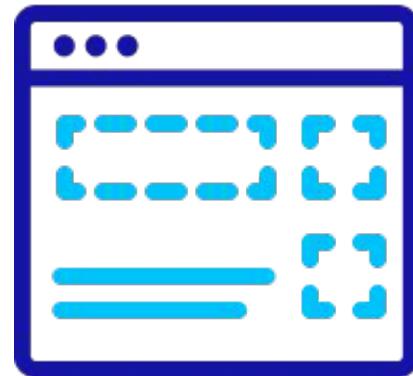


**Content
Pages**



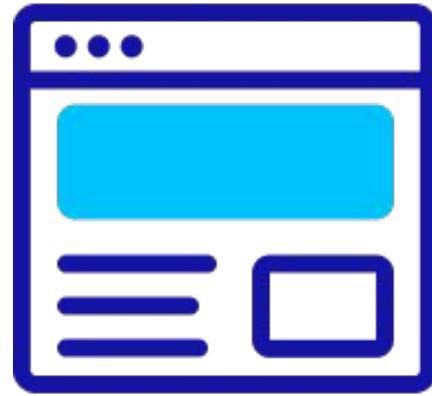
Widget Pages

- Best used for when primary focus is on functionality rather than content presentation
- Ideal for building dashboards, landing pages, or simple layouts with frequently changing content
- Good fit for solutions that require integrating multiple functionalities or services
- You need unique functionalities not available in existing Liferay features or widgets
- Allow you to easily add, remove, and rearrange widgets on the fly, providing high flexibility for creating dynamic and interactive content layouts
- Allow for sections to be marked as “editable by users” allowing users to creating personalized layouts



Content Pages

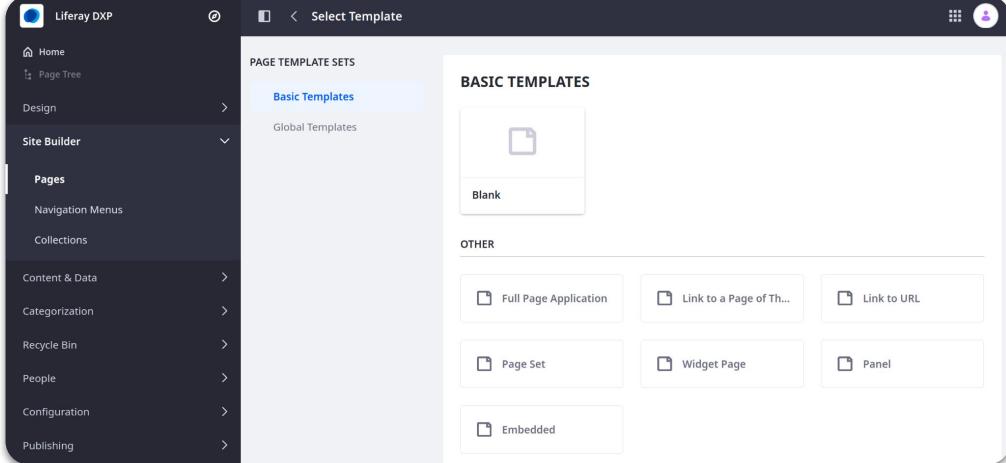
- Used to create content-rich, visually engaging pages
- Rich in-context visual editorial process that allows for page composition through the use of fragments and widgets
- Ideal for landing pages, marketing campaigns and other scenarios where presentation and engagement are key
- Create personalized page experiences and manage localized translations to engage your target audiences
- Optimize user experience with the responsive layout editor
- Finally, with A/B Testing, you can create alternative versions of a content page to track visitor data (e.g., bounce rate, clicks, etc.)



Pages and Page Templates

Additional Page Types

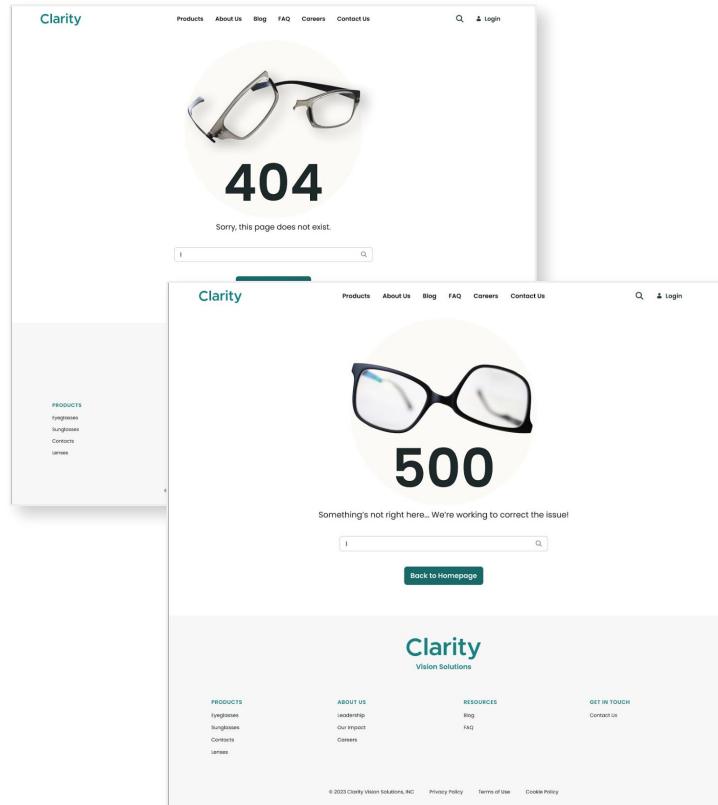
- Collection Pages
- Full Page Application
- Link to a Page of This Site
- Link to URL
- Page Set
- Panel
- Embedded



Pages and Page Templates

Utility Pages

- Utility pages serve specific operational tasks or actions
- They are essential for users to interact with a website or application effectively
- Support for 400 and 500 error pages
- Provides out of the box pre-built pages that can be used or modified
- Allows for administrators to define their own custom error pages



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Pages and Page Templates

One more thing ...Utility Pages

- Utility pages serve specific operational tasks or actions
- They are essential for users to interact with a website or application effectively
- Support for 400 and 500 error pages
- Provides out of the box pre-built pages that can be used or modified
- Allows for administrators to define their own custom error pages



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A screenshot of the Clarity Vision Solutions website. It shows three views of the site: 1) A standard page with a navigation bar (Products, About Us, Blog, FAQ, Careers, Contact Us, Login) and a sidebar (PRODUCTS: Frames, Sunglasses, Contacts, Lenses). 2) A 404 error page featuring a large yellow comic-style speech bubble with the word 'WOW!' in pink, and a cartoon character wearing glasses. The message says 'Sorry, this page does not exist.' 3) A 500 error page with a similar design, showing a cartoon character and the number '500'. The message says 'Something's not right here... We're working to correct the issue!' A blue box highlights the 500 error page. At the bottom, there's a footer with links to Products, About Us, Resources, and Get in Touch, along with copyright information and links to Privacy Policy, Terms of Use, and Cookie Policy.



12/ Page Templates



**Page
Templates**

or



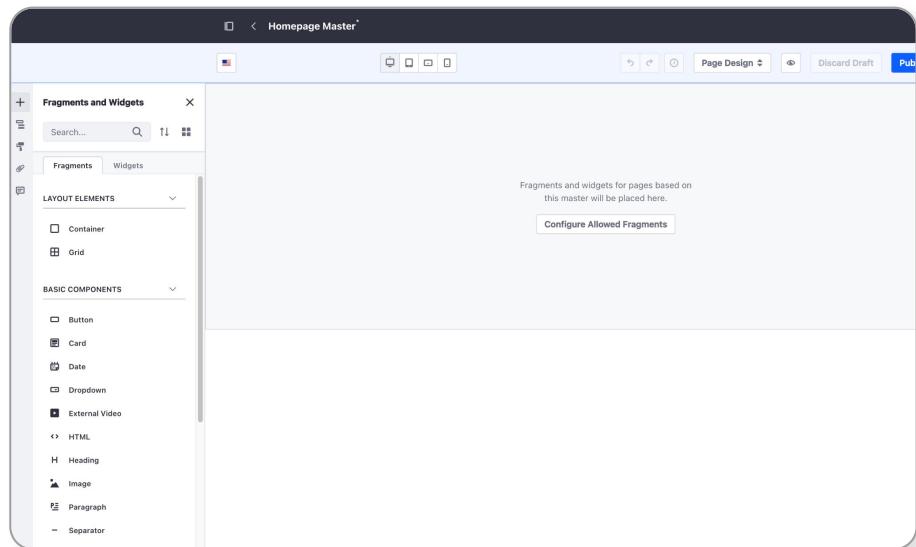
**Master
Pages**



Creating Pages + Template Options

Master Pages

- Gives you control over the entire “canvas” that represents the page
- Leverages the same (familiar) editing tools and functionality as working with *Content Pages*
- Provides the means to lock down certain parts of the page by restricting which areas can be edited
- Provides the ability to control which fragments (design elements) are available for use
- Can be used as a standalone baseline when creating a new page or as part of a (Content Page) page template



Creating Pages + Template Options

Page Templates

- Come in two flavours
 - Widget Page Templates
 - Content Page Templates
- Ideal use cases
 - Consistent website sections with similar layouts and functionalities
 - Landing pages with a specific design and call to action
 - Articles requiring a structured format
- Significantly reduce development time and costs
- Lower the bar for entry – less Liferay knowledge required to add new pages to site
- Provide boilerplate starters but can be modified
- Allow for propagation of changes

The screenshot shows a web-based application interface for managing page templates. At the top, there's a header with the text "Clarity Public Site" and a three-dot menu icon. Below the header is a search bar labeled "Search for" with a magnifying glass icon and a blue "+" button. To the right of the search bar are two filter options: "Content Page Template" and "Widget Page Template". The main content area features a large circular icon containing a satellite illustration, with several small crosshair icons around it. Below this icon, the text "There are no page templates." is displayed. The entire interface has a clean, modern design with a light gray background.



Creating Pages + Template Options

Display Page Templates

- Predefined layouts and functionalities for Liferay pages
- **Faster:** Reduce development time by using pre-built layouts and functionalities
- **Reduced Costs:** Minimize design and development expenses
- **Content Management Efficiency:** Non-technical users can easily manage content within sections of the template
- **Scalability and Reusability:** Create new pages that inherit the same design and structure
- **Modular Design:** Utilize common layout elements and functionalities across different sections of the website
- Streamline content management and website maintenance

INNOVATION
Innovations in Eyewear Technology: Beyond Clear Vision
Take advantage of exclusive offers on the latest products to deliver exceptional value for your business and your customers.
[Read More](#)

Search Filter By Category All

INNOVATION
The Craftsmanship Behind Our Collections
7 Min Read | 3 Days Ago
[Read more →](#)

INNOVATION
The Craftsmanship Behind Our Collections

Alexis Clark
Chief Innovation Officer
3 Days Ago

Share <

Unrivaled Precision:
Craftsmanship is at the heart of our brand. Each frame is meticulously crafted by skilled artisans who understand the intricate dance between form and function. From the initial design sketches to the final touches, our commitment to precision ensures that every detail is a masterpiece in itself.

Materials of Distinction:
We believe that the foundation of exceptional eyewear lies in the choice of materials. Our craftsmen select only the finest materials, ensuring durability, comfort, and a touch of luxury. Whether it's the smooth finish of acetate or the lightweight resilience of titanium, every material is chosen with utmost care to complement our commitment to quality.

Handcrafted Elegance:



Menus, Navigation and Design Elements

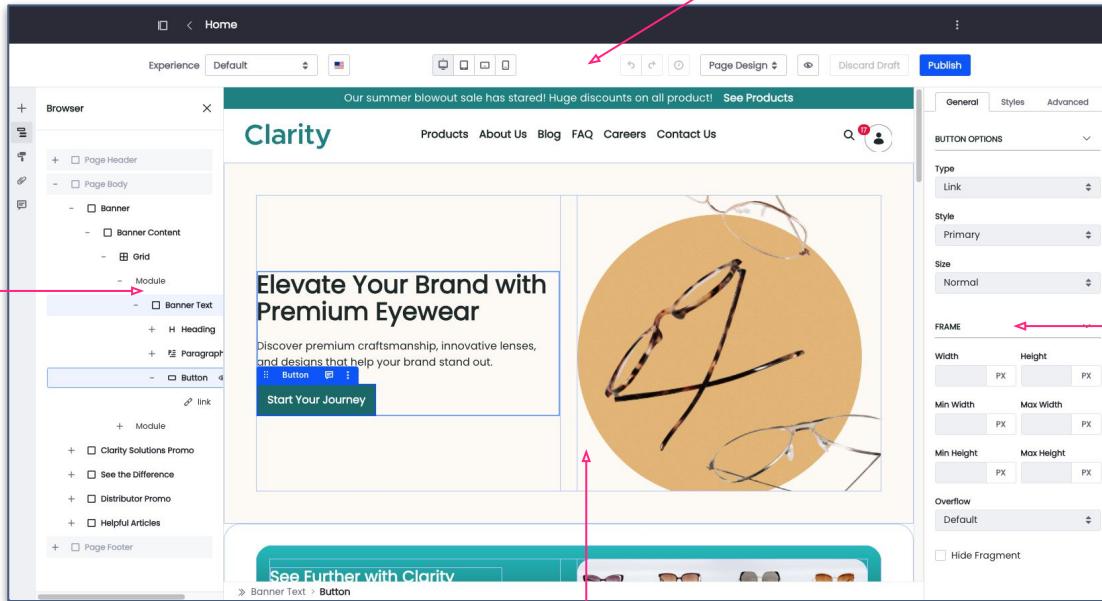
Page Builder

Building Blocks
and Explorer

Secondary
Tools

Block
Configurations

Canvas for Real-Time Design





Demo: Page Types and Working with Page Builder

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Exercise #6a - #6f: Creating and Updating Pages and Templates



Lesson 07

Building Menus and Navigation

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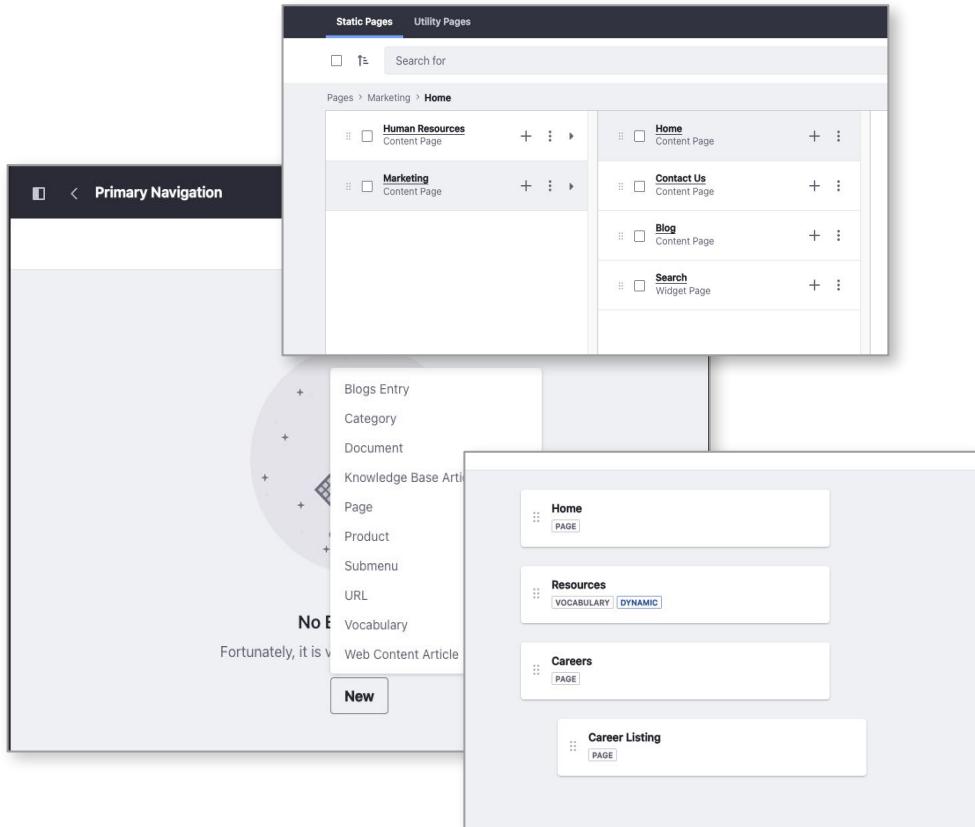


13/ Menus and Navigation

Menus and Navigation

Building Menus

- Menus created independently of pages
- Liferay provides several menu types out of the box (eg. primary, secondary)
- Administrators are also free to define custom menu types
- Simple and intuitive interface for building menus
- Access controls by setting visibility for specific roles
- Supports dynamic content
 - Eg. Using a Vocabulary



Menus and Navigation

Rendering Navigation

- Supported by *Content Pages* and *Widget Pages*
- Menu Display Fragment out of the box for standard horizontal and vertical menus
- Menu Display Widget for more advanced use cases
- Supports Widget Templates
- Templating based on FreeMarker offers unlimited options for rendering
- Freemarker is one option but so is leveraging the composition fragments
- Compositions lowers the bar for entry as it allows non-technical users to build navigations

The screenshot shows the Liferay Admin UI interface for creating a new menu display template. The top navigation bar has tabs for 'Information Templates' and 'Widget Templates', with 'Widget Templates' selected. A search bar and a 'Filter and Order' dropdown are also present. On the right, a sidebar lists various template types, with 'Menu Display Template' selected. The main content area shows a form titled 'Add Menu Display Temp' with a preview section showing a 'Main Navigation' icon and the name 'Main Navigation'. Below the preview is a code editor containing FreeMarker template code for rendering navigation entries. The code uses classes like 'clarity-navigation-container', 'list-group', and 'list-group-item' along with FreeMarker tags like '#if', '#list', and 'a href="#"'. To the right of the code editor is an 'Elements' panel with a search bar and a 'Disable tab key using: Ctrl+M' note. The bottom right of the interface shows sections for 'FIELDS', 'GENERAL VARIABLES', and 'CURRENT URL'.

```
1 <div class="clarity-navigation-container">
2   <#if entries?has_content>
3     <ul class="list-group list-group-horizontal">
4       <#list entries as navigationEntry>
5         <li class="list-group-item">
6           <a href="#">${navigationEntry.getName()}</a>
7         </li>
8       </#list>
9     </ul>
10    </#if>
11  </div>
```





Demo: Menus and Navigation

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Some features may not be available in earlier releases.*



Exercises #7a - #7b: Creating and Configuring Menus and Navigation



Fragments and Design Elements

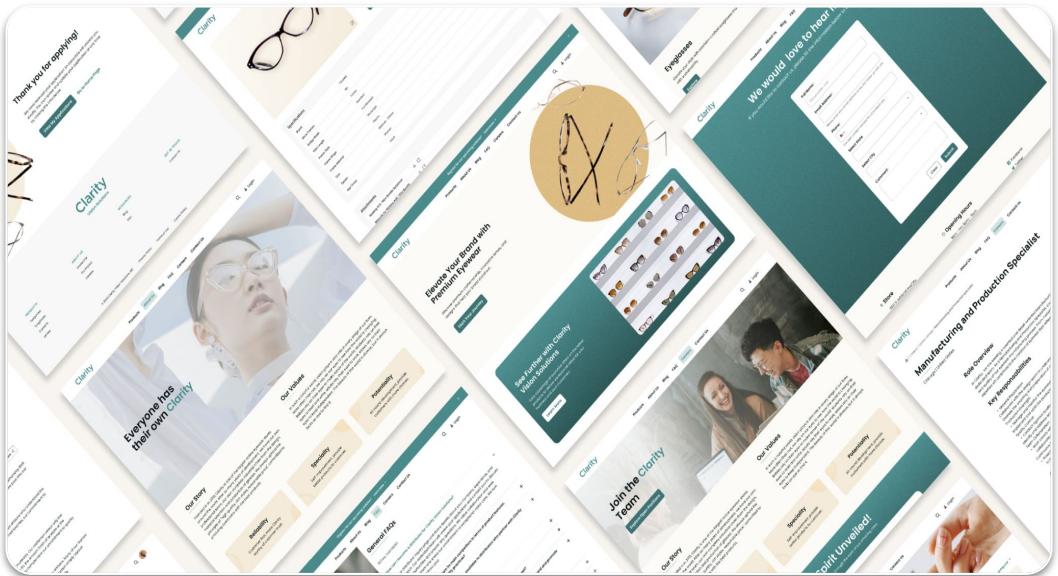
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Menus and Navigation

Understanding Page Design

- Pages are composed of several elements that all act as building blocks
- Blocks include; Fragments, Widgets, and Client Extensions
- There are other more static elements as well; Navigation Menus, Page Headers and Footers
- Branding is accomplished via styling one or more styling elements
- Elements include: Themes and/or Style Books, Frontend Client Extensions
- There are also individual styling elements (one offs applied to a single item)

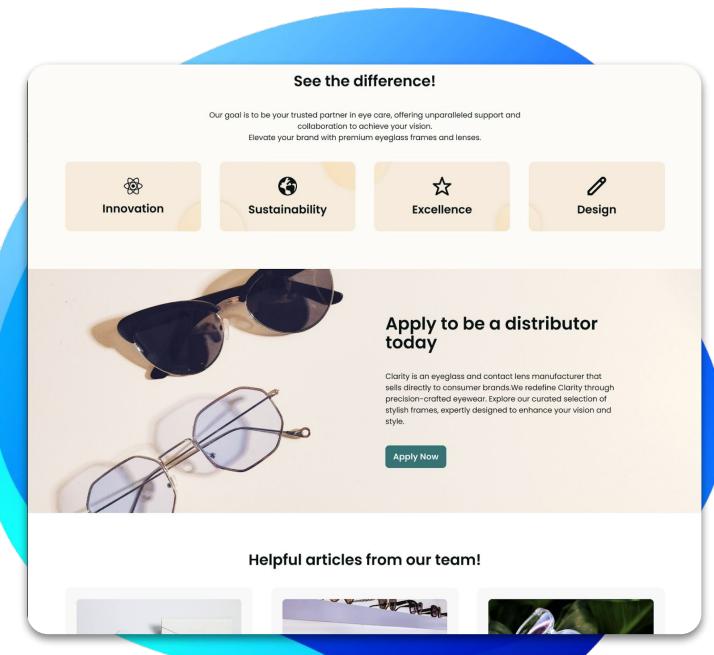


14/ Fragments

Wireframing Pages + Custom Fragments

Fragments

- **Reusable building blocks** made up of HTML, CSS and JavaScript
- **Offer ultimate flexibility** as they can be used in a variety of places (menus, headers, forms, etc)
- **Dynamic integration** can include widgets, web content or even other fragments
- **Autonomous** as changes to one fragment on Page X don't affect fragment on Page Y
- **Examples:** Navigation Bars, Section Headers, Hero Banners, Social Media Integrations

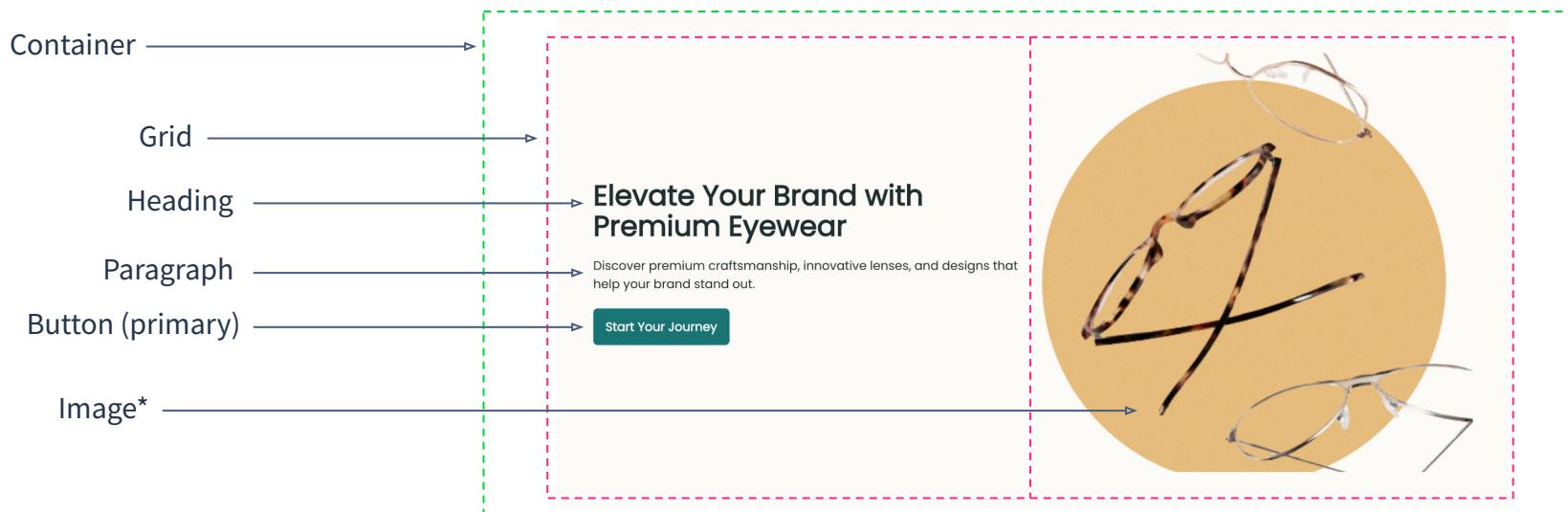


Benefits of Fragments

- **Increased Developer Productivity:** maximize reusable (fine grained) components
- **Improved Page Composition Flexibility:** easily tweak page construction by adding, removing or moving elements in real-time
- **Simplified Maintenance:** fragments can be altered and auto-propagate changes without deployment (most of the time)
- **Flexible:** can be used on their own or embedded in other templates
- **Composable:** basic blocks can be grouped and layered together to build more complex UI elements without having to write code



Fragment Compositions



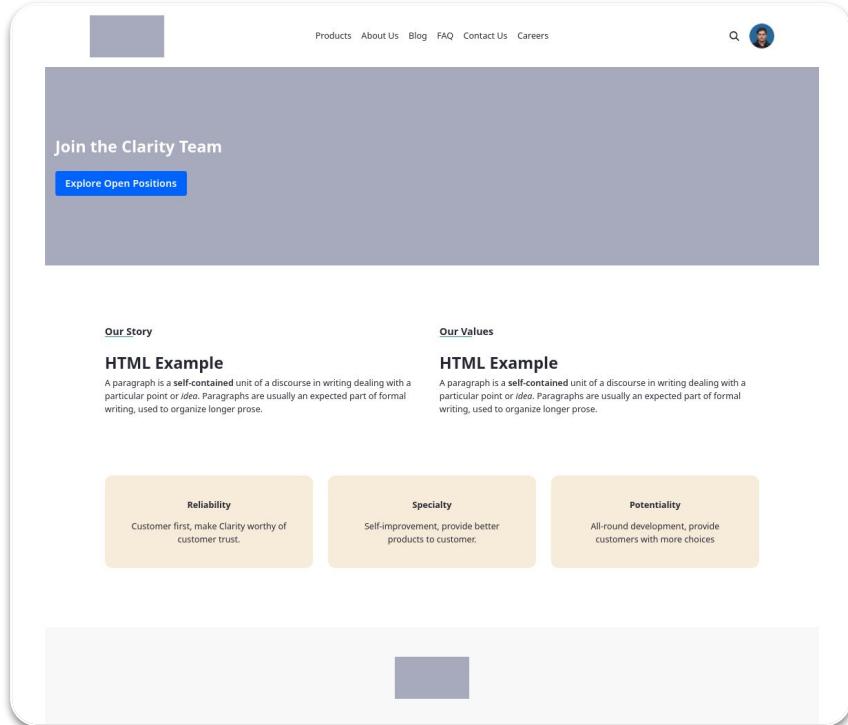
*this can be done with a background image on the container



Wireframing Pages + Custom Fragments

Wireframing

- **Collaborative Design:** designers and business work together in real time
- **Interactive Prototypes:** provides a preliminary version of the solution that can be navigated to validate user experience
- **Reusable Component Identification:** allows for the identification of reusable components that can be converted into compositions
- **Validate Design and UX:** provides a low cost mechanism for validating conceptual designs
- **Effective Communication:** gives visual representation that eliminates the “imagine ...” scenario





Demo: Fragments and Compositions

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Exercises #8a - #8d: Wireframing and Custom Fragments





Bonus Challenge

Challenge

Modify the Login and User Action fragment so users can configure the login button's target URL instead of hard coding its value.

Requirements

- Use the [URL configuration](#) to set the login button's href.

Success Criteria

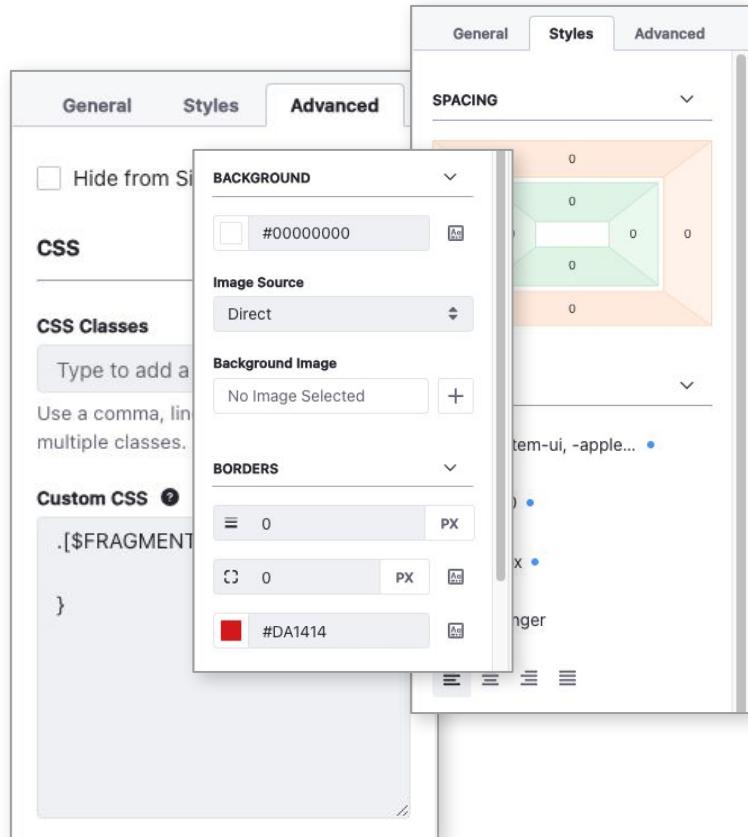
When editing a template that includes the fragment, you can set the fragment's login URL via the configuration side panel.



15/ Design Elements

Instance-Based Styles

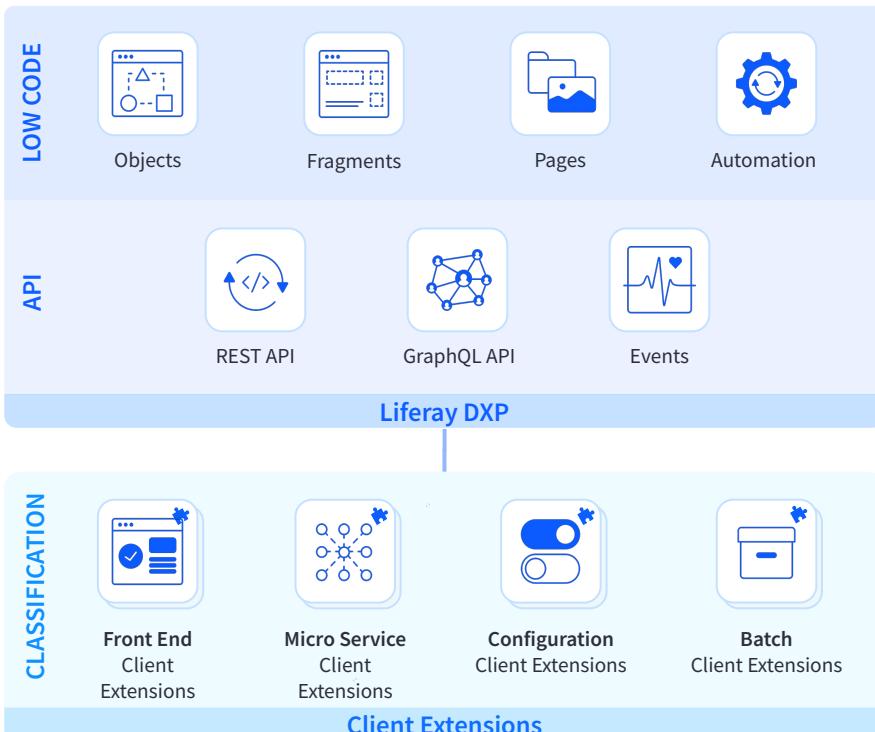
- Cases where you need something temporary or a one-off for a short period of time
- Equivalent to “inline” styling but can be done visually through point-and-click configuration
- Applicable to all fragments and widgets when working with *Content Pages*
- Does not require duplication of code
- Only applicable to fragment/widget being edited – even if same item is used more than once on same page



Design and Client Extensions

JS + CSS Client Extensions

- Alternative option to traditional plugins
- Client Extensions (CX) are “Externalized” plugins and extensions
- Frontend Client Extensions support JS, CSS, Spritemap, Favicon, Custom Elements and more
- Registered in DXP so that it is aware of the resources, but DXP does not control or manage them
- Supported by all three offerings
 - Liferay Self-Hosted
 - Liferay PaaS
 - Liferay SaaS
- Provide extension while simultaneously mitigating many challenges with updates
- **Can be used in place of traditional Theme plugins**



Client Extensions Registered

- Can be added manually through configuration UI, or via deployment (zip containing metadata in YAML)
- Liferay administrative UI allows you to choose where and which extensions to be applied
- Supports granular approach (application at page level) or something more broad
- Can be used to augment existing resources or replace them (the theme) entirely
- Remember – these can be used in place of traditional Theme plugins

The screenshot displays two main sections of the Liferay administrative interface.

Client Extensions section:

Name	Type
Animate CSS	CSS
SweetAlert2	JS
SweetAlert2	CSS

10 Items ▾ Showing 1 to 3 of 3 entries.

New Theme CSS section:

Theme CSS defines CSS resources to override those provided by the theme.
[Learn more about browser based client extensions.](#)

IDENTITY

Name *

en-US

CONTENT

Main CSS URL
This CSS replaces main.css.

Clay CSS URL
This CSS replaces clay.css.

Design and Client Extensions

Client Extensions Configured

- Supported by both Widget Pages and Content Pages
- Accessible from the Page Settings, under the Design section
- Support multiple items meaning you can have more than one external resource listed (no need to manually merge)
- Control the order in which added entries are loaded into the page (when more than one configured)
- JavaScript extensions can be loaded in either the head or bottom of the page

Customization

CSS **JavaScript**

THEME CSS CLIENT EXTENSION

Use this client extension to fully replace the default CSS contained in the theme. Be aware that all the declared design tokens and CSS variables will be overridden. Therefore, style books will not provide a way to style pages anymore.

Theme CSS

No theme CSS client extension was loaded. [+](#)

CSS CLIENT EXTENSIONS

Extend this page CSS with client extensions. They will be loaded after the theme CSS and after master extensions.

[+ Add CSS Client Extensions](#)

No CSS Client extensions were loaded.

THEME SPRITEMAP CLIENT EXTENSION

Info To add or edit the existing spritemap, simply copy/paste and make changes as needed to your registered extension.

Use this client extension to fully replace the default spritemap contained in the theme.

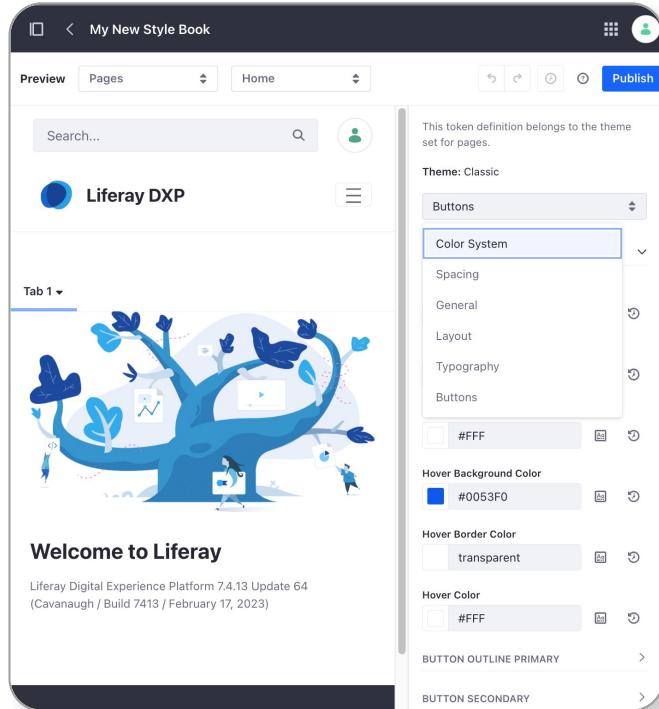
Theme Spritemap Client Extension

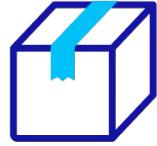
Name [+](#)



Live Edits with Style Books

- New functionality introduced in DXP 7.3
- Provide the ability to define which CSS (variables) can be adjusted at runtime
- Allows for Theme variations similar to the old “color schemes” capability
- Scope of customizability can be established inherently (omission of certain variables)
- Eliminates complex or lengthy change processes
- Allows designers and marketers to own design management function





Oh .. we almost forgot to mention **traditional Themes**.



Demo: Stylebooks and Styles Overrides

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Exercises #8e - #8f: Applying Design Elements



Lesson 09

Asset Management

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What is content management and why is it important?

Introduction to Content Management

- Term used both generically and broadly
- Modern Content Management focuses on enabling non-technical to manage data without deployment
- Content Management is a term used to describe the Lifecycle of managing *Data*
- Lifecycle event examples include:
 - Collection of information from users/systems
 - Retrieval and Delivery of data (not always users)
 - Governance and Overall Management
- Promotes the idea of a collaborative process that can involve one or more stakeholders with varying levels of skills and responsibilities



16/ Digital Asset Management

Content Management and Authoring

Clarity Business Requirements

- Enable non-technical users to create and manage engaging content
- Measure the effectiveness of content and experiences
- Organize content so it can be managed by the right people
- Provide ability to manage documents and supporting files
- Provide the ability to generate and serve documents at different resolutions
- Allow for content to be used throughout the site and beyond
- Enforce a content review process and approval process when appropriate



Digital Asset Management

Features

- 1 **Asset Libraries;** provides an easy way to create buckets of assets that can be secured (permissioned) and shared across one or more sites.

- 2 **Content Dashboard;** provides a single pane of glass related to assets with a variety of types, sorting and filtering. Can be connected to Analytics Cloud to provide in context analysis of asset performance.



Features (cont'd)

3

Documents and Media; centralized administration area where items can be added, updated, permissioned, organized into folders, tagged, checked in/out and more.

4

Adaptive Media; allows for different image sizes to be named and specified (eg. Thumbnail 16px X 16px). New images added will auto-generate variants based on the different rules provided.

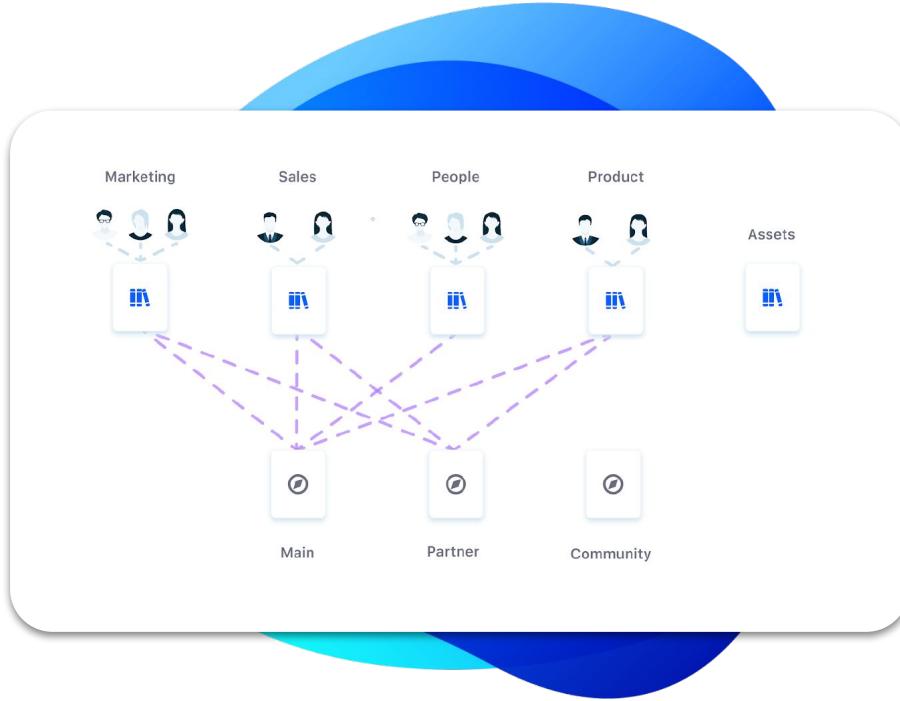


Managing Digital Assets

Sharing Content with Asset Libraries

Liferay Asset Libraries centralize image, document, and media storage, simplifying content management, boosting collaboration, and ensuring easy access to reusable assets across your Liferay DXP projects.

- Allow marketers to create dedicated libraries of content to support multiple sites and channels
- Centralized storage and reuse
- Cross-site content sharing
- Improved organization and discoverability
- Enhanced security and access controls





Demo: Asset Libraries in Action

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Exercises #9a - #9b: Creating and Using Asset Libraries



Lesson 10

Structured Web Content

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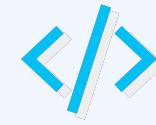


17/ Structured Web Content



**Structured
Web Content**

or



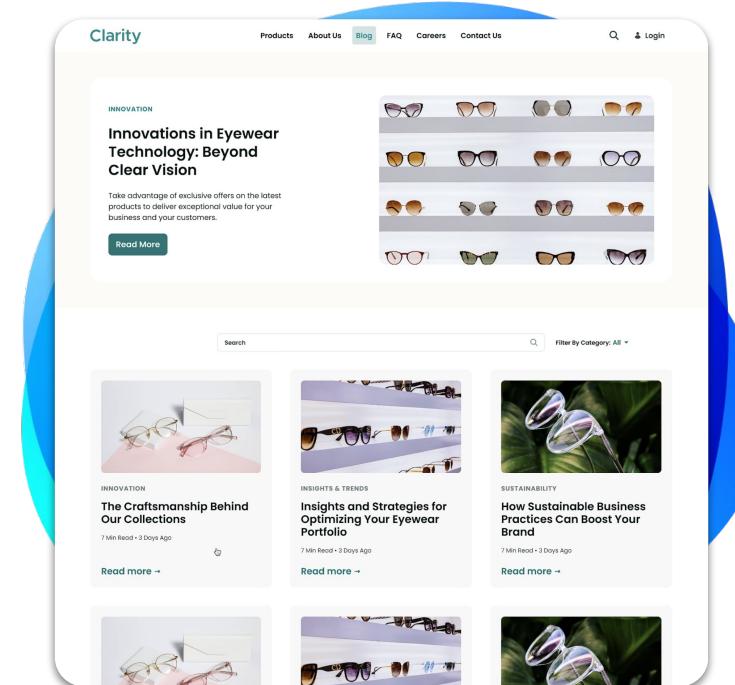
Fragments



Structured Content

Content structures provide a flexible foundation for organizing and managing your website content, ensuring consistency, reusability, and simplified authoring for editors and content creators.

- **Content-focused;** used to store subject material such as articles, news, announcements , etc
- **Structured;** by providing fields that create the form used by content administrators
- **Reusable;** as a single item can be rendered in more than once anywhere in the site
- **Dynamic;** can be edited and published independently and updates automatically propagate
- **Examples:** Blog posts, press releases, event details



Web Content and Structures

Web Content in Action

Register for our [Open with](#) Learn more >

Clarity

Products About Us Blog **FAQ** Careers Contact Us

General FAQs

RETAIL PARTNERS

How can I become a distributor for Clarity Vision Solutions? +

Visit our distributor inquiry page and share details about your company, experience, and market reach. Our dedicated team will review your application and contact you to discuss potential opportunities and answer any questions. We value collaboration and seek passionate partners who share our commitment to exceptional vision care. We look forward to hearing from you!

What sets Clarity apart from its main competitors in terms of product features, technology, and sustainability practices? +

What are the growth opportunities available to distributors who partner with Clarity Vision Solutions? +

PRODUCT & SERVICES

What are the range of products you offer? +

What certifications or safety standards do your products meet? +

Where can I find training and marketing resources to help understand and promote Clarity products? +

PRICING & ORDERING

What is your pricing model? +

You got questions.
We've got answers.

Collection of FAQs items associated with a category

FAQ Structured Content Item

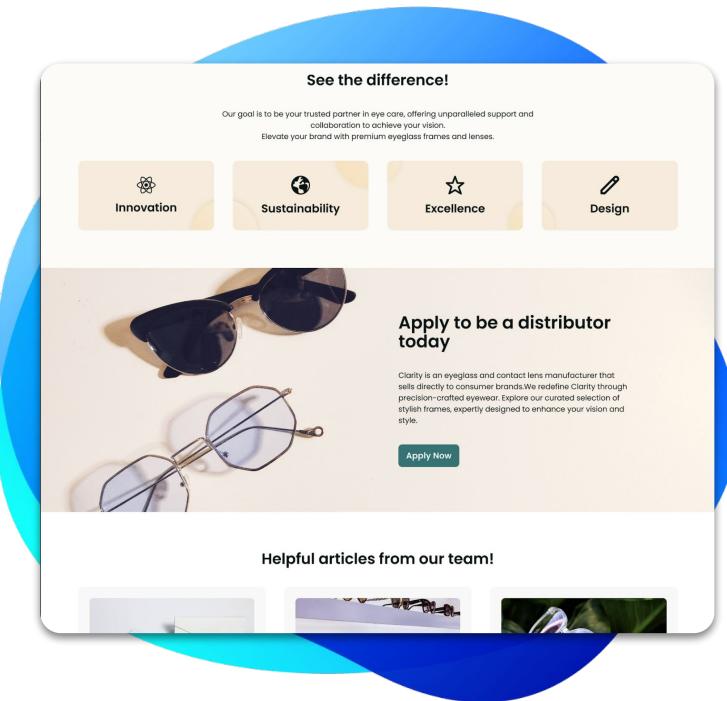


Content Management in Action

Fragments

Fragments empower you to create reusable UI components, accelerating development, streamlining content management.

- **Reusable building blocks** made up of HTML, CSS and JavaScript
- **Offer ultimate flexibility** as they can be used in a variety of places (menus, headers, forms, etc)
- **Dynamic integration** can include widgets, web content or even other fragments
- **Autonomous** as changes to one fragment on Page X don't affect fragment on Page Y
- **Examples:** Navigation Bars, Section Headers, Hero Banners, Social Media Integrations



Content Management in Action

Fragments in Action

The screenshot shows a website header with navigation links: Register for our, Open with, Learn more, Products, About Us, Blog, FAQ (highlighted in green), Careers, Contact Us, a search icon, and a login link. Below the header is a large image of a pair of glasses on a surface with a green plant in the background. Overlaid on the image is a dashed red rectangular box containing the text "You got questions. We've got answers". To the right of the image is a sidebar with a dashed red border. The sidebar has a title "General FAQs" and sections for "RETAIL PARTNERS", "PRODUCT & SERVICES", and "PRICING & ORDERING". Each section contains a question and a plus sign (+) to expand the content.

General FAQs

RETAIL PARTNERS

How can I become a distributor for Clarity Vision Solutions?

Visit our distributor inquiry page and share details about your company, experience, and market reach. Our dedicated team will review your application and contact you to discuss potential opportunities and answer any questions. We value collaboration and seek passionate partners who share our commitment to exceptional vision care. We look forward to hearing from you!

What sets Clarity apart from its main competitors in terms of product features, technology, and sustainability practices?

What are the growth opportunities available to distributors who partner with Clarity Vision Solutions?

PRODUCT & SERVICES

What are the range of products you offer?

What certifications or safety standards do your products meet?

Where can I find training and marketing resources to help understand and promote Clarity products?

PRICING & ORDERING

What is your pricing model?

Header Fragments

Image Fragment



Decision Criteria

1

Security

Need to restrict ownership and changes, or, limit visibility to a specific group of people

2

Governance

There are business processes (reviewers, approvers, required data, etc) that need to be enforced

3

Reusability

Content will be used in more than one place with one or more visual treatments





Demo: Working with Structured Content

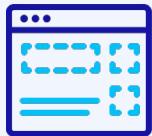
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Exercises #10a - #10b: Creating Structures and Importing Content

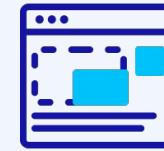


18/ Content Display and Mapping



Fragments
(with mappings)

or



**Web Content
Templates**



Content Display and Mapping

Fragment Mapping

Web content to fragment mapping simplifies page creation. Reuse content sections (fragments) across pages, managed centrally in web content, for a consistent and efficient user experience.

- **Dynamic Content Display:** Populate fragments with content based on user attributes, audience targeting, or specific web content fields.
- **Improved User Experience:** Deliver personalized and contextually relevant content to users.
- **Increased Content Reusability:** Leverage fragments across different pages while dynamically displaying content based on mapping.
- Visual (and quicker) mechanism that provides real-time view (rendering)
- Can be used (and saved) with Compositions to accelerate the process moving forward using templates



Content Display and Mapping

Web Content Templates

Web content display templates allow marketers to design unique layouts for specific content types. This creates a branded, consistent look for different content categories.

- **Content Consistency:** Templates ensure a consistent look and feel across different web content pages.
- **Flexibility and Customization:** While providing structure, templates allow for customization of specific elements within the layout.
- **Separation of Concerns:** Templates separate content (text, images) from presentation (structure, styling),
- **Freemarker Integration:** Leverage Freemarker syntax within templates for conditional logic and dynamic content display.





Demo: Web Content Display Templates

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Exercise 10c: Mapping and Displaying Content



Answers Questions?

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Next Up

What's Next?

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