Course : Developing data visualization applications

tools and frameworks

Practical course - 4d - 28h00 - Ref. DTV

Price : 2960 CHF E.T.

On completion of the course, you will be able to develop applications for data visualization, analysis and retrieval. You'll master the fundamental principles of data visualization and be able to identify the most appropriate visualizations for your projects.

Teaching objectives

At the end of the training, the participant will be able to:

- Understand the key principles of data visualization
- Understanding the design of data visualizations
- Master the legal framework for data storage and analysis
- Using APIs for data visualization
- Develop with the main data visualization frameworks (information, networks, diagrams...)

Intended audience

Developers, project managers, data analysts, data scientists, analysts and statisticians, or anyone who wants to get hands-on with data visualization.

Prerequisites

Basic knowledge of software development.

Course schedule

1 Introduction to information visualization

- Definition, concepts and objectives. Role of the user and interaction.
- Common diagrams: histograms, pie charts, 3D.
- Multidimensional visualization: scatter plots, inselberg diagrams.
- Multi-level visualization: hierarchical data, full zoom.
- Visualization techniques: fisheyes, hyperbolic view.
- Network visualization: hierarchical, radial.
- Visualization by force model: energy model, spring model.
- The legal framework for data storage and analysis.

PARTICIPANTS

Developers, project managers, data analysts, data scientists, analysts and statisticians, or anyone who wants to get hands-on with data visualization.

PREREQUISITES

Basic knowledge of software development.

TRAINER QUALIFICATIONS

The experts leading the training are specialists in the covered subjects. They have been approved by our instructional teams for both their professional knowledge and their teaching ability, for each course they teach. They have at least five to ten years of experience in their field and hold (or have held) decision-making positions in companies.

ASSESSMENT TERMS

The trainer evaluates each participant's academic progress throughout the training using multiple choice, scenarios, hands-on work and more.
Participants also complete a placement test before and after the course to measure the skills they've developed.

2 Graphic semiology: the basis of visualization

- The human visual system.
- Visual variables.
- Perceptive properties.
- Extension of semiology: movement.

Case study
Use of different visual variables.

3 Animated transitions and interactive captions

- Definition, concepts and goals.
- Animations and interactive captions in visualizations.
- Handling visual variables.
- Rules to follow.
- Added value.

Hands-on work
Manipulating visual variables. Create animated transitions.

4 Information visualization tools

- JavaScript frameworks for data visualization.
- Data visualization frameworks based on other languages (Java, Python, etc.).
- A few additional tools.

Hands-on work
Get to grips with Frameworks.

5 Network visualization

- Network types (scale-free, small-world, etc.).
- Network analysis (lexical network, social network, text corpus, etc.).
- Creation of a network-oriented visualization (in JavaScript).
- Setting up and choosing different interaction levers: full zoom, selection...

Hands-on work
Development of network-oriented visualization applications.

6 Visualizing diagrams

- Study of a data set.
- Creation of several interactive diagram-based visualizations (in JavaScript).
- Implementation and choice of different interaction levers: interactive captions, fly-throughs, etc.

Hands-on work
Development of diagram-based visualization applications.

TEACHING AIDS AND TECHNICAL RESOURCES

• The main teaching aids and instructional methods used in the training are audiovisual aids, documentation and course material, hands-on application exercises and corrected exercises for practical training courses, case studies and coverage of real cases for training seminars.
• At the end of each course or seminar, ORSYS provides participants with a course evaluation questionnaire that is analysed by our instructional teams.
• A check-in sheet for each half-day of attendance is provided at the end of the training, along with a course completion certificate if the trainee attended the entire session.

TERMS AND DEADLINES

Registration must be completed 24 hours before the start of the training.

ACCESSIBILITY FOR PEOPLE WITH DISABILITIES

Do you need special accessibility accommodations? Contact Mrs. Fosse, Disability Manager, at psh-accueil@orsys.fr to review your request and its feasibility.

7 OpenData visualization and mapping

- Introduction to open data.
- Visualizing Paris open data with visualization frameworks.
- Study of JavaScript mapping frameworks.

Hands-on work
Data visualizations based on open data.

Dates and locations

REMOTE CLASS
2026 : 31 Mar., 19 May, 29 Sep.