Основы визуального моделирования с использованием UML 2.x (online)

Код: REQ-001_ONL

Длительность: 16 ч.

Описание:

The basis for the success of any IT project is a well-organized communication between all of the parties: project team members, customers, subcontractors. The complexity of building such communication significantly increases with geographical expansion of projects, when all the participants not only speak different languages, but also have a different mentality. However, even if the project is focused in one country, it is very common that business representatives and software developers differ in language and mentality almost as dramatically as people from different countries.

How to make important project information accessible and understandable to each participant? How to develop a "common language", which would allow to describe design decisions clearly, unambiguously and completely?
Best practice for this is the use of visual modeling languages that allow to get rid of the ambiguity of natural languages. Their effectiveness is based on two main principles:

- clear graphic images for describing even fairly abstract concepts;
- clear formal rules for creating integral models from these graphic images.

For IT projects by far the most versatile and user-friendly visual modeling language is UML (Unified Modeling Language). It allows to describe the systems of any complexity from different points of view at any stage of the development process.

This training is devoted to the study of the current version of UML language. During the training the most popular types of UML diagrams (Class, Use Case, Sequence, Communication, State Machine, and others) are discussed in detail.

But the construction of valid and useful visual models is impossible without proper object-oriented thinking; knowledge of only UML syntax is not enough. Therefore, much attention is paid to the basics of object-oriented programming (OOP) on the training. In particular, we discuss such concepts of OOP as abstraction, modularity, inheritance, encapsulation, and polymorphism.

Цели:

The main objectives of the training:

- Study the characteristics of object-oriented approach to analysis and design of information systems.
- Understand the purpose and basic principles of visual modeling.

- Study the syntax and the rules of construction of the most popular types of UML diagrams.
- Acquire the skills of using different UML diagrams for system modeling.

After completing the course, students will be able to:

- Explain such concepts of OOP as abstraction, polymorphism, inheritance, modularity.
- Identify actors, use cases and build Use Case Diagrams.
- Identify classes and describe the relationship between them (Class Diagram).
- Simulate the behavior of classes using Sequence, Communication and State Machine diagrams.
- Build and understand some of the other UML diagrams.

Разбираемые темы:

The course covers the following topics:

- The concept of model and principles of visual modeling.
- Basics of UML.
- Concepts of object-oriented approach.
- UML: class diagram.
- UML: use case diagrams.
- UML: modeling behavior.
- UML: other diagrams.
- The process of model building.

Целевая аудитория:

The course is designed for anyone who needs to use visual modeling in complex IT projects:

- system and business analysts;
- customer representatives, product owners;
- architects and developers;
- project managers.

Предварительная подготовка – общее:

- Знание английского языка на базовом уровне;
- Участие в проектах разработки программного обеспечения;
- Знакомство с принципами объектно-ориентированной разработки.

Настоятельно рекомендуется предварительное прохождение курсов SDP-001 «Обзор методологий разработки программного обеспечения» и SDP-002 «Основы методологии IBM Rational Unified Process». Слушатель подтверждает знание понятий и концепций, излагаемых в указанных курсах, **на основе входного тестирования**.

Рекомендуемые дополнительные материалы, источники:

Буч Г., Рамбо Д., Джекобсон А. Язык UML. Руководство пользователя. ДМК Пресс, 2006.

Соммервилл И. Инженерия программного обеспечения = Software Engineering. 6-е изд. М.: Вильямс, 2002.

Ларман К. Применение UML и шаблонов проектирования. 3-е изд. М.: Вильямс, 2013.

Примечание:

Курс входит в состав школы «Системный анализ». Специализация школы – выявление, документирование и структурирование требований к информационным системам. Учебные материалы школы разработаны на основе международного руководства «Guide to the Business Analysis Body of Knowledge ® (BABOK ®), version 2». В частности, в ходе курса затрагиваются вопросы, относящиеся к некоторым техникам BABOK ®: «Моделирование данных», «Организационное моделирование», «Моделирование процессов», «Сценарии и варианты использования», «Диаграммы последовательности», «Диаграммы состояния». Язык UML поддерживается большим числом платных и бесплатных инструментальных CASE средств: Sparx Systems Enterprise Architect, Sybase Power Designer, Visual Paradigm, ARIS и многими другими. В курсе эти инструментальные средства подробно не рассматриваются и не применяются, но обсуждаются варианты их выбора в ИТ-проектах.