

BUSINESS SYSTEMS

Systems Analysis

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Outline

- 1 Domain-Driven Design
- 2 Business Systems Analysis
- 3 Software Methodologies
- 4 Requirements Engineering



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Basics of Domain-Driven Design I

- **DDD** is focusing on the **core domain** and **domain logic**, it is a way of thinking aimed at accelerating **software projects** that have to **deal with complicated domains**.
- The essential **terms** of DDD are *context, model, ubiquitous language, bounded context, and business logic in layers*.
- **DDD** is a set of **principles and patterns** that help to design a **system** ensuring alignment with the **real-world business needs**.



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Basics of Domain-Driven Design II



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- The main **principles** of **DDD** are:
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 - Base complex designs on **models** of the domain.
 - Constantly collaborate with domain experts.
 - Develop a knowledge-rich model.
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Basics of Domain-Driven Design II

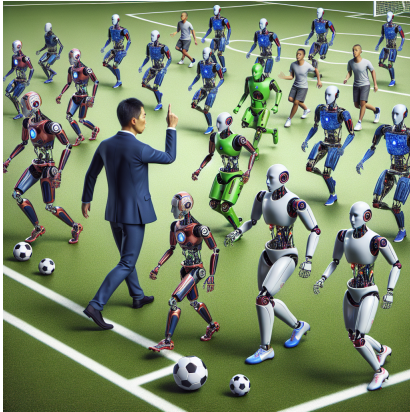


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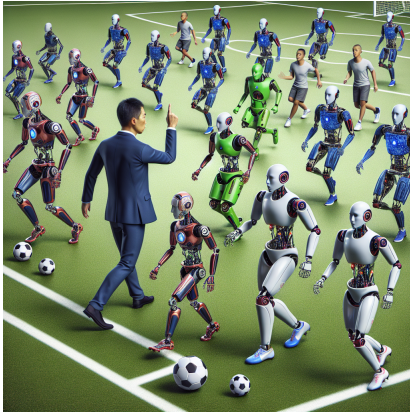


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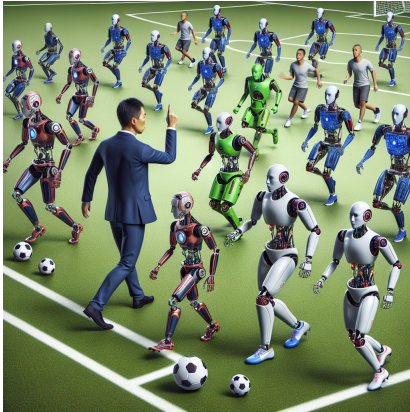


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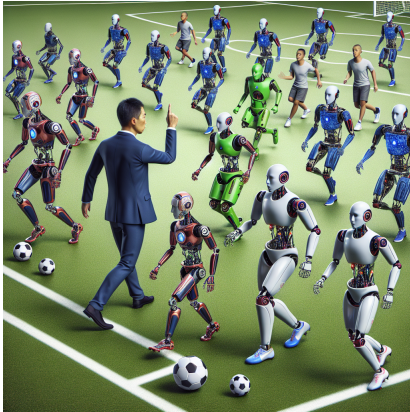


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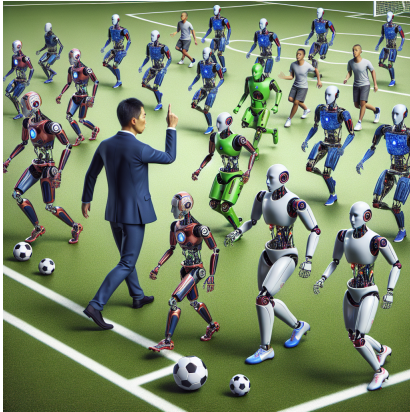


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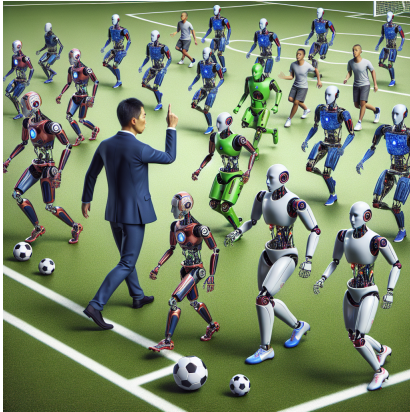


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Case of Study: DDD for Condor



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- They are designed to **automate and streamline business processes**, improve **efficiency**, and provide accurate and timely **information** for **decision-making**.
- **Business systems** can include a wide range of **components**, such as:
 - Enterprise resource planning (ERP) systems
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Business Analysis

- **Business analysis** is the process of identifying **business needs** and determining **solutions** to *business problems*.
- It involves understanding the **current state** of the **business**, **analyzing requirements**, and **recommending improvements**.
- **Business analysts** use various **techniques** and tools to gather and document **requirements**, such as interviews, surveys, and workshops.
- The goal of **business analysis** is to align business objectives with IT solutions and ensure that the resulting **systems meet** the needs of the **business**.
- Key activities in business analysis include:

● **Requirements Understanding**: Business processes and workflows

● **Requirements Gathering**: Identifying and documenting business requirements

● **Requirements Analysis**: Analyzing and prioritizing requirements

● **Requirements Communication**: Collaborating with stakeholders

● **Requirements Management**: Managing changes and updates



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• Requirements elicitation, analysis, and specification

• Requirements management and communication

• Requirements validation and verification

• Requirements change management



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Business Models Examples

Understanding Business Models Through Flywheels

amazon



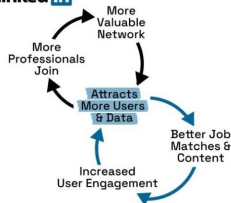
NETFLIX



Spotify



LinkedIn



IT Project Management

- **IT Project Management** is the **process** of planning, organizing, and controlling the resources and activities required to complete an **IT project**.
- It involves **defining project goals**, **creating a project plan**, **allocating resources**, **managing risks**, and **monitoring project progress**.
- **Key components of IT Project Management** include:
 - Project initiation and planning
 - Project organization and management
 - Project execution and monitoring
 - Project closure and evaluation
- **Common IT Project Management methodologies** include:
 - Waterfall model
 - Agile
 - Scrum
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Case of Study: Example of a KANBAN Board



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Software Methodologies

- **Methodologies** are a set of steps to complete tasks or to perform processes.
- They are next level of algorithms, more complex, more detailed.



Traditional Methodologies

- At the beginning, **methodologies** to solve software problems were **big**, tons of steps, documentation of decisions taken, and looking for a lot of **explanations for everything**.
- **Some problems** required *old school methodologies* to be solved. However, there are **just a few** cases of them.
- Big methodologies **required** a lot of **resources**, as humans, knowledge, time and money. Sadly, in real-world, you rarely have all those things to solve problems.



Agile Methodologies

- **Agile methodologies** were created and developed for **small technology companies** unconsciously around thirty years ago.
- Some technology companies are tricky: start with small teams, with a few of money, but with big potential growth.
- The term **startups** group this kind of companies. If you want to develop a product with small teams and no so much budget, you need to **think smart** and **think fast**.
- Agile methodologies focus on final product more than in *processes* and *documentation*.
- It means, have a good leadership, a good team culture, a good learning curve, share knowledge, make the client a strong part of the process, and have quickly new versions of the product.



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Case of Study: Example of a SCRUM Workflow



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- **Requirements engineering** is **critical** to the success of a software project, as it helps to **ensure** that the **resulting system** meets the needs of the **users** and **stakeholders**.
- Key activities in requirements engineering include:
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 - Analyzing and documenting requirements
 - Validating requirements against user needs
 - Maintaining a shared understanding of requirements



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 - Eliciting requirements from **stakeholders**
 - Analyzing and documenting **requirements**
 - Validating requirements with **stakeholders**
 - Managing changes to **requirements**



Requirements Engineering I

- **Requirements engineering** is the process of **gathering**, **documenting**, and **managing** the requirements for a software project.
- It involves **understanding** the needs of the **stakeholders**, defining the **scope** of the project, and creating a **shared understanding** of the requirements.
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Requirements Engineering II

- It is normal the **clients do not know what they want**. They are confused, or with **wrong expectations**, even with **bad understanding** of the problem.
- Gather **right information** means make the **right questions**. At the same time, it is important to understand **business domain**, define **business rules**, and create the right shared vocabulary.
- Always be **honest**, understand **client's expectations**, and define **processes** aligned with those **expectations**.
- Effective **requirements engineering** requires good communication with **stakeholders**, a clear understanding of the **business domain**, and the ability to **translate business needs** into **technical requirements**.



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User Stories

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Testing and Requirements Validation

- **Testing** is the process of **evaluating** a **system** or application to **ensure** that it meets the **requirements** and **expectations** of the **stakeholders**.
- Testing is an **essential** part of the software development process, as it helps to **identify defects** and **improve** the quality of the software.
- There are many different **types** of **testing**, including:
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 - Regression testing
- **Testing** should be planned and executed throughout the software development process, from the requirements phase to the deployment phase.



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Outline

- 1 Domain-Driven Design
- 2 Business Systems Analysis
- 3 Software Methodologies
- 4 Requirements Engineering



Thanks!

Questions?



Repo: <https://github.com/EngAndres/ud-public/tree/main/courses/systems-analysis>

