Software Methodology

*Software Testing Methods -> How to test software (Agile, Waterfall)
*Software Testing Levels -> When to test software(Unit, Integration, System, UAT)
*Software Testing Types -> What type of testing is used to test software (Performance, Smoke, Regression...)

*An essential set of principles and rules for managing a project
	*There are several methods in the IT industry
	*All the project management methods have unique rules and principles that describe how to follow the SDLC
		*These rules are strict and define how to manage, plan, and control software development procedures
	*These methods include
		*Waterfall -> sequential
		*Agile -> non-sequential
		*V-Model -> sequential

*Waterfall Method
	*In the construction industry a product has to be developed step by step. People should work carefully on each step because they cannot go back to the previous step to fix errors based on the waterfall method rule
	*First software method used to develop software
	*Each phase is completed before starting the next step
		*Testing is not done concurrently with development
	*Simple and easy to understand and use
	*Each phase is divided into separate steps
	*Each step depends on the outcome of the previous stages to proceed
	*Waterfall guarantees success when the projects are small with clear requirements

	Advantages
		*Easy to use and implement, no need to train the team and familiarize them with the waterfall methodology
		*The start and end points for each phases are set, easy to measure progress
		*The stability of the model makes project management easier
		*Since all phases occur without any overlap, reducing the project complexity
		*Careful planning of project development structure reduces the number of issues
		*Quality and detailed documentation

	Disadvantages
		*Poor software result for long duration and large projects

*If the customers requirements are not clear then it could create significant complications later in the project
*Little to no changes. Once the requirements are finalized any changes in requirements would not only be difficult but also costly

Agile Method
*Modern, well known, and widely used in software projects
*Started in 2001
*Under agile there are different implementations/frameworks
*Agile is a mindset/approach to software development and can be implemented differently with different frameworks
*Goal is to speed up development times in order to bring new software to market faster
*Shortening deployment time
*Getting feedback from users quickly -> client is involved in each step of SDLC
*Success of agile depends on (communication)
*Short and quick
*Self organized team
*Communication
*Quickly adjust the working process
*Quick and constant feedback
*To implement the agile in a company each member should know Agile-Manifesto -> rules about agile
*Is an advisory, public advice which contains the values and principles to follow in the agile methodology

*4 Agile Values
1. Individuals and Interactions
*Trust individuals and prefer interactions over processes and tools
2. Working Software
*Focus on delivering working software rather than complete documentation
3. Customer Collaboration
*More customer involvement not just negotiation
4. Responding to change
*Willing to accommodate changes instead of being rigid to a plan

*12 Agile Principles
1. Satisfy Customer
*Short development cycles, quick delivery, and happy customer
2. Accept Changes
*revise goals
3. Continuous Delivery

*Deliver working software frequently
4.Collaboration
*Working closely with everyone involved, especially the client, through development cycle
5.Trust and Support
*Show confidence in the people involved
6.Face-to-Face conversation
*Allow transparent interactions
7.Working Software
*This defines the progress of project
8.Maintain Constant Pace
*Agile processes to normalize the development speed
9.Good Ideas and Improvement
*Continued attention to technical details
10.Simplicity
11.Self-Organizing
*The key to good architectures, requirement, and designs -> organize
12.Revisit
*How to become more efficient

*Advantages(Agile)
*Better time-to-time market -> produce working software and making it available to end users more quickly
*Realistic approach to software development
*Strong collaboration
*Accept changes at any time
*Project goal is defined with the client
*Project quality improved

*Disadvantages
*Little to no planning
*Lack of documentation
*Training and skill required
*Organizational Transformation -> business and development members

Agile Priciples in more detail can be found here
https://agilemanifesto.org/principles.html?msclkid=f11e8f4ab6b011ecb8c32bd1bd1c3885

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