



System Development Lifecycle

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Purpose

The purpose of this policy is to establish a standard expectation for implementation of a Software Development Lifecycle (SDLC) that produces software that is secure, accessible, mobile ready, and compliant with secure development standards, policies, and practices.

The documentation provides a mechanism to ensure that executive leadership, functional managers and users sign-off on the requirements and implementation of the system. The process provides Apply Financial's Project Managers with the visibility of design, development, and implementation status needed to ensure delivery on time and within budget.

Scope

This Guideline applies to all major application projects, both new applications and upgrades of existing applications.

Goals

The goals of this SDLC approach are to:

- Deliver quality systems which meet or exceed customer expectations when promised and within cost estimates.
- Provide a framework for developing quality systems using an identifiable, measurable, and repeatable process.
- Establish a project management structure to ensure that each system development project is effectively managed throughout its life cycle.
- Identify and assign the roles and responsibilities of all involved parties, including functional and technical managers, throughout the system development life cycle.
- Ensure that system development requirements are well defined and subsequently satisfied.

Objectives

The SDLC methodology will help to achieve these goals by:

- Establishing appropriate levels of management authority to provide timely direction, coordination, control, review, and approval of the system development project.
- Ensuring project management accountability.
- Documenting requirements and maintaining trace ability of those requirements throughout the development and implementation process.
- Ensuring that projects are developed within the current and planned information technology infrastructure.
- Identifying project risks early

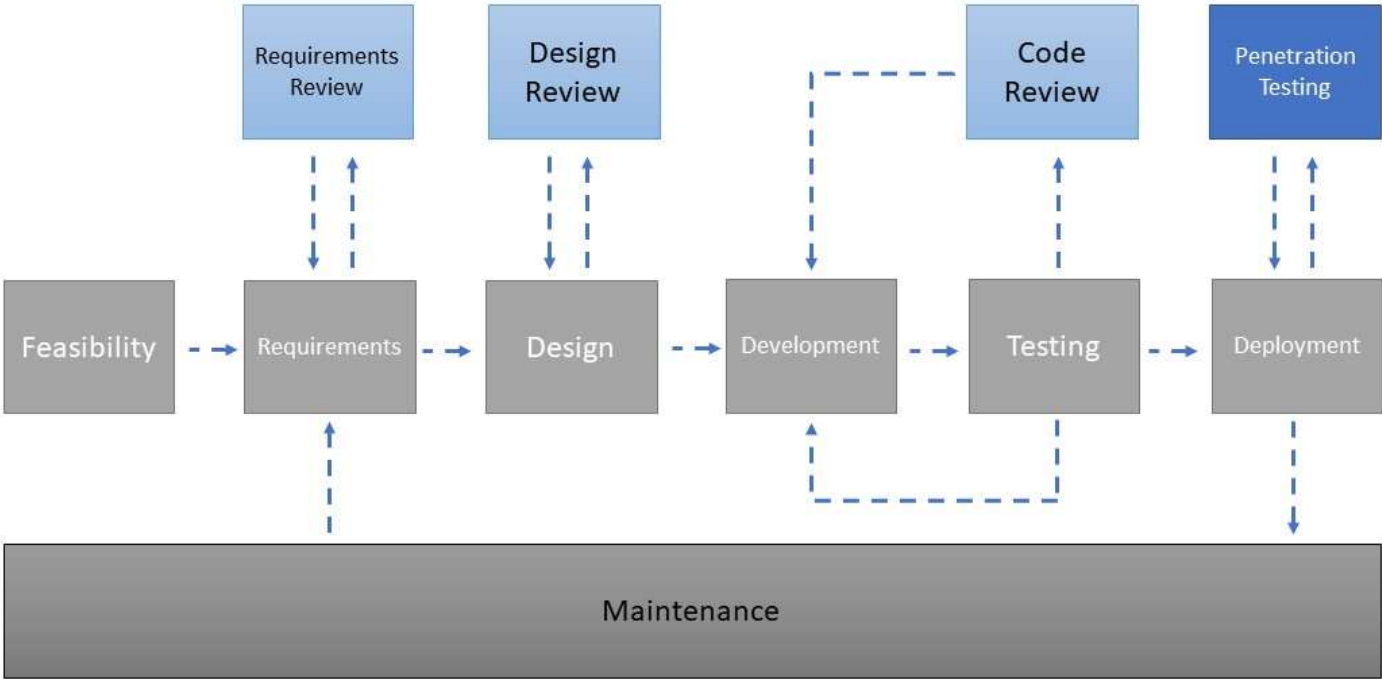
Guidelines & Procedures

Our software development process runs through 3-4 week sprints. These allow us to rapidly develop the application. Each development lifecycle has the potential to introduce bugs, security flaws and to reduce the relevance of the product. The project must not only during the process be assessed for the product function and relevance but also to assess any security implications that could be introduced. Security must be discussed at each stage and the

The SDLC Phases

SDLC includes six phases, during which defined work products and documents are created, reviewed, refined, and approved. Not every project will require that the phases be subsequently executed and may be tailored to accommodate the unique aspects of a projects. These phases are described in more detail in the following paragraphs.

SDLC Flow



Feasibility Phase

The Feasibility Phase is the initial investigation, or brief study of the problem to determine whether the systems project should be pursued.

- Identify and validate an opportunity to improve business accomplishments of the 'Apply Financials' or a deficiency related to a business need
- Identify significant assumptions and constraints on solutions to that need

A feasibility study established the context through which the project addresses the requirements expressed in Business Case and investigates the market and user needs of a proposed solution.

Requirements Analysis Phase

This phase formally defines the detailed functional user requirements using high-level requirements identified in the Initiation and Feasibility Phases. The requirements are defined in this phase to a

level of detail sufficient for systems design to proceed. They need to be measurable, testable, and relate to the business need or opportunity identified in the Initiation Phase.

The purposes of this phase are to:

- Complete business process reengineering of the functions to be supported, e.g., verify what information drives the business process, what information is generated, who generates it, where does the information go, and who processes it.
- Develop detailed data and process models including system inputs and outputs.
- Develop the test and evaluation requirements that will be used to determine acceptable system performance.
- This must define functional and non-functional requirements

Design Phase

During this phase, the system is designed to satisfy the functional requirements identified in the previous phase. Since problems in the design phase can be very expensive to solve in later stages of the software development, a variety of elements are considered in the design to mitigate risk. These include:

- Identifying potential risks and defining mitigating design features

- Performing a security risk assessment
- Developing a conversion plan to migrate current data to the new system
- Determining the operating environment
- Defining major subsystems and their inputs and outputs
- Allocating processes to resources
- At least 1 of the stories in this must be a security consideration to ensure this is discussed and fully investigated

Development Phase

Effective completion of the previous stages is a key factor in the success of the Development phase. The Development phase consists of:

- Translating the detailed requirements and design into system components
- Testing individual elements (units) for usability
- Preparing for integration and testing of the IT system.

Testing Phase

In this phase we will cover a number of test phases these include integration, functional, system, security, and user acceptance testing is conducted during this phase as well. The user, with those responsible for quality assurance, validates that the functional requirements are met by the newly developed or modified system.

All code must be both peer reviewed and code reviewed using Sonarqube with OWASP / SANS Security Reports being produced, reviewed and signed off by the dev team leader before testing is complete.

This will also include a code review through our code review solution, issues within this will need to be mitigated before testing is signed off.

Deployment Phase

This phase is initiated after the system has been tested and accepted by the user. In this phase, the system is installed to support the intended business functions. System performance is compared to performance objectives established during the planning phase. Implementation includes user notification, user training, installation of hardware, installation of software onto production computers, and integration of the system into daily work processes. This phase continues until the system is operating in production in accordance with the defined user requirements.

Operations and Maintenance

The system operation is ongoing. The system is monitored for continued performance in accordance with user requirements and needed system modifications are incorporated. Operations continue as long as the system responds to the organization's needs. When modifications are identified, the system may reenter the planning phase.

Appendix

Code reviews

All code must be both peer reviewed and code reviewed using Sonaqube and OWASP / SANS Security Reports must be produced and signed off by the team leader before testing is complete.