Analysis of Current Trends in Software Development

Trend	Description	Why is it Happening?	Expected Impact
Low Code / No Code	The use of natural language and visual editors for writing applications that reduce or eliminate the direct writing of code	Desire to rely less on expensive and scarce technical experts. Desire by users to build things themselves.	Reduction in time and cost for some application development. Pushes some applications development directly to the end user.
Non-cryptocurrency uses of blockchain	Use of blockchain technology to build smart contract and other peer-to-peer networks that need provenance and authenticity services	Blockchain technology can be used to add digital provenance and authenticity layers to any digital asset or content in a decentralised and transparent manner	Blockchain software capabilities will be needed in supply chain operations and management, healthcare, and other industries.
Growth of use of AI in everyday applications	Increasing use of AI in applications that directly interface with people or monitor human activity	Increasing decentralisation of workforces is driving the need for automation with natural language processing and predictive analytics	Increasingly sophisticated use of computer vision, natural language processing, and automated business processes will make customer interaction, customer support, and digital service delivery more efficient but less human connected
Modern programming languages	Modern programming languages like Rust, Go, and Swift are becoming increasingly popular with their enhanced robustness, security, and maintainability.	Newer programming languages were designed with current hardware capabilities and data handling requirements in mind rather than legacy hardware	Developers will need to learn new languages and in some cases specialty languages for specific purposes
Growth of Big Data in the Cloud	Increasing availability and use of Cloud technologies for storing and utilizing Big Data enables AI and machine learning (ML) services to grow dramatically	AI and ML services are much more cost effective when provided as cloud based serverless computing services	AI and ML applications utilizing enormous data stores will become commonplace and inexpensive, bringing the power of AI and ML to many everyday tasks and consumer needs.
Growth of IoT	The use of Internet of Things technologies is growing rapidly in many industries	IoT makes manufacturing, supply chains, healthcare delivery, and many other things more efficient and safer	Demand for software development related to IoT capabilities is expected to grow very rapidly
DevOps	A software development methodology that goes beyond Agile to integrate operations and maintenance into the development cycle.	Improves usability, maintainability, and security through shared responsibility across the lifecycle and the automation of software code versioning, testing, packaging, releasing, configuring, deployment, and operational monitoring.	Reduce costs while improving delivery time, maintainability, and security.
Integration of security requirements into development	Shift from security and compliance being an add-on after an application is developed to security being baked in from the beginning.	Growth of information security failures, cybercrime, hacking by foreign entities, and exposure of personal information.	Developers and security experts will work together during the entire DevOps cycle to enable effective security by design.
Serverless computing	A new paradigm in software architecture that breaks software down into small independent components that run individually as needed	Availability of highly scalable cloud computing resources	Enables rapid application development and highly efficient application operation.
The rise of Python	The Python programming language is gaining popularity rapidly.	Python not only fits development needs on all platforms (web, mobile, enterprise) but it also has mathematical capabilities required to handle machine learning, big data, and AI.	Python might soon overtake JavaScript as the most commonly used programming language.

Impact of Key Trends on a Real-World Project

Project Title

Patient Benefits Enrollment Application for a Large Pharma Company

Project Description

- Project was to build an application in Salesforce to enable call center agents to enroll patients into a benefits program
- The application included the ability to send and receive documents, insurance information, physician notes and records, prescription records, and other supporting information as well as automate status and approvals tracking and communication
- My role was requirements gathering and solution architecting early in the early phases of the overall project

Process Description – How was the Project Done?

- For this project, a loosely managed Agile methodology was used, with three week sprints
- Development and testing were all done directly in Salesforce, with a dedicated testing team and a DevOps team responsible for code changes, code promotion, and code release
- Design and development sprints were done in direct collaboration with the end users, with working software released to production use after each testing cycle

What key trends influenced your project?	How?	What was the impact?
Low Code / No Code	Much of the development was done inside Salesforce's no code visual process editor	Functionality and changes were able to be configured, tested, and released without coding expertise, allowing for less expensive resources and faster release times
DevOps	The team responsible for managing and maintaining the production environment was also part of the development and testing teams	Issues of security, maintainability, trainability, and useability were brought forth during development sooner, and in many cases avoided up front
Serverless Computing	The project integrated utilisation of AWS cloud based serverless computing resources for AI / machine learning and forecasting	Cutting edge predictive utilization and marketing analytics were available to the customer for very little additional investment