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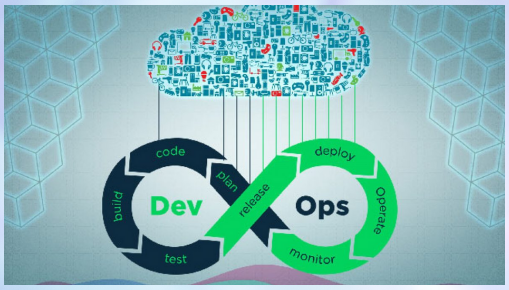
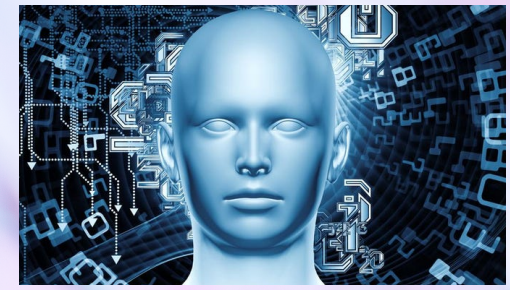
Department of

CSE

Byte Quest

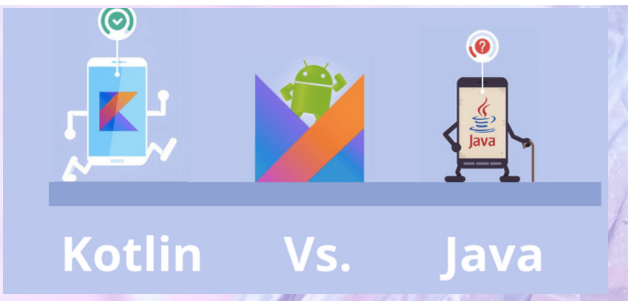


DEVOPS



COGNITIVE COMPUTING

DIGITAL TWINS TECHNOLOGY



KOTLIN VS JAVA

Department Vision

To be a center for academic excellence in the field of Computer Science and Engineering education to enable graduates to be ethical and competent professionals.

Department Mission

To enable students to develop logic and problem solving approach that will help build their careers in the innovative field of computing and provide creative solutions for the benefit of society.

FACULTY COORDINATORS

S. KOMAL KAUR (ASST. PROFESSOR)
T. NISHITHA (ASST. PROFESSOR)

STUDENT COORDINATORS

CHANDRASHEKAR (2/4) CSE B
VARUN (2/4) CSE C
AKASH (3/4) CSE C
ANISHA (4/4) CSE B

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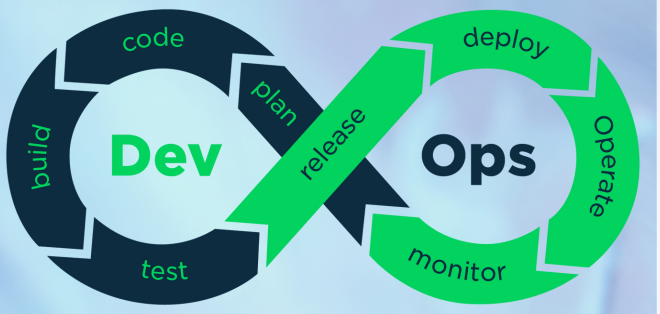
DEVOPS

DevOps is a set of practices, tools, and a cultural philosophy that automate and integrate the processes between software development and IT teams. 'DevOps' is an enterprise software development phrase, which has emerged from the terms 'Development' and 'Operations' of the software development life cycle (SDLC) and is a part of the Cloud technology. DevOps ideals extend agile development practices by further streamlining the movement of software change through the build, validate, and deploy and delivery stages, while empowering cross-functional teams with full ownership of software applications – from design through production support.



The genesis of DevOps comes from an increasing need for innovation on the systems side of technology work. The DevOps movement inherits from the Agile System Administration movement and the Enterprise Systems Management (ESM) movement.

COGNITIVE COMPUTING

Cognitive computing is the new influx of Artificial Intelligence (AI), depending on customary strategies dependent on master frameworks and furthermore abusing insights and scientific models. his technology is based on computer learning systems using data mining, pattern recognition and natural language processing to mimic the way the human brain works. Cognitive computing systems use machine learning algorithms. In such systems acquire knowledge on a continuous basis from the data they receive, by mining the data in search of information. The system refines the way it looks for patterns and the way it processes data in order to become able to anticipate new problems and model possible solutions.

Cognitive Computing can be considered as a technological game-changer. It understands the language, recognizes objects, text, face, and scenes. Cognitive Computing can analyze the vast quantity of structured as well as unstructured data and can make recommendations.

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DIGITAL TWINS TECHNOLOGY

A digital twin is a digital representation of a physical object, process or service. A digital twin can be a digital replica of an object in the physical world, such as a jet engine or wind farms, or even larger items such as buildings or even whole cities. A digital twin is, in essence, a computer program that uses real world data to create simulations that can predict how a product or process will perform. The life of a digital twin begins with experts in applied mathematics or data science researching the physics and operational data of a physical object or system in order to develop a mathematical model that simulates the original.

A digital twin can be as complex or as simple as you require, with differing amounts of data determining how precisely the model simulates the real world physical version. Since it can be used across a wide range of industries, from automotive to healthcare and power generation, it has already been used to solve a large number of challenges. These challenges include fatigue testing and corrosion resistance for offshore wind turbines and efficiency improvements in racing cars. A digital twin allows users to investigate solutions for product lifecycle extension, manufacturing and process improvements, and product development and prototype testing.

Digital twin can be broken down into three broad types, which show the different times when the process can be used:

- **Digital Twin Prototype (DTP)** - This is undertaken before a physical product is created
- **Digital Twin Instance (DTI)** – This is done once a product is manufactured in order to run tests on different usage scenarios
- **Digital Twin Aggregate (DTA)** – This gathers DTI information to determine the capabilities of a product, run prognostics and test operating parameters.

Digital twin is key to the development of Industry 4.0 to provide automation, data exchange and joined-up manufacturing processes as well as de-risking product rollout.

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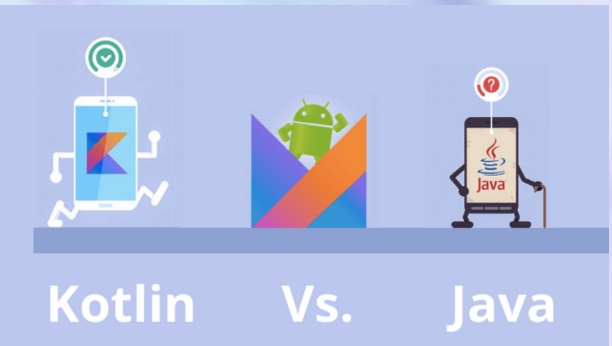
KOTLIN VS JAVA



Java is a simple, powerful, and robust object-oriented programming language suited for various purposes like Android apps, web apps, server apps, embedded systems, big data and more. Kotlin is a programming language that runs on a Java virtual machine (JVM), can be compiled into JavaScript, and run in browsers.

Kotlin and Java provide almost the same speed for coding. However, Kotlin has more laconic constructions, which allow a developer to type less. Finding a solution to a task requires more time than with Java, which means that the language has a higher cognitive load. Kotlin is more functional than Java, due to its extra features. It is also easier to work with multithreading apps due to Kotlin's Coroutines tool. On the other hand, Java is simple, and has fewer extra features than Kotlin, thus compiling faster. Though Kotlin is also an established language, it is still younger than Java. The language has no versions with long-term support. Though both Java and Kotlin are considered stable languages, Java ultimately wins the battle of stability. According to Google Trends, Java tickles the interest of developers more than Kotlin. On one side, Java is a universal language. Though primarily the language was used for developing Android applications, it's found its way to becoming an ideal choice for big data, ecommerce, and enterprise systems. Companies like Netflix, AppleTV, Hybris, and ATG all use this technology. On the other hand, Kotlin is a better choice for developing modern-day Android apps.

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