**Khed Taluka Shikshan Prasarak Mandal’s**

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**TYBBA(CA)**

**A**

**Project Report**

**On**

**“Cloud computing”**

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**Under Guidance:**

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**Proposed Research Topic and Introduction**

**Proposed Research Topic:**

The Evolution, Benefits, and Security Challenges of Cloud Computing.

**Introduction:**

Cloud computing is a revolutionary technology that allows users to access and store data over the internet instead of traditional on-premise servers. It provides scalable resources, cost-effectiveness, and enhances business operations. Cloud computing is categorized into different service models such as IaaS, PaaS, and SaaS, each serving specific needs. This research aims to explore the growth of cloud computing, its impact on industries, security challenges, and future trends.

**Literature Review**

Cloud computing has transformed IT infrastructure by shifting from hardware-dependent environments to virtualized and distributed computing. Key studies highlight:

* The **transition from traditional IT infrastructure** to cloud-based environments.
* **Public, Private, and Hybrid Clouds**: Their applications and benefits.
* **Cloud Security Concerns**: Data privacy, compliance, and cyber threats.
* **Advancements in AI and Edge Computing**: Enhancing cloud capabilities.

Research has emphasized the importance of robust security measures and compliance protocols to ensure the safe adoption of cloud computing in industries.

**Objectives of Study**

* To understand the fundamentals of cloud computing and its evolution.
* To analyze various cloud service models and deployment strategies.
* To assess the advantages of cloud computing in different industries.
* To examine security risks and challenges associated with cloud adoption.
* To explore future trends, including AI integration and edge computing.

**Area of Study**

This study focuses on cloud computing technologies and their applications. Key areas include:

* **Cloud Service Models:** Infrastructure as a Service (IaaS), Platform as a Service (PaaS), Software as a Service (SaaS).
* **Deployment Models:** Public, Private, Hybrid, and Multi-Cloud.
* **Benefits of Cloud Computing:** Scalability, cost reduction, remote accessibility.
* **Security Challenges:** Data breaches, compliance regulations, encryption techniques.
* **Emerging Trends:** AI-driven cloud computing, Edge Computing, and Serverless Architecture.

**Research Methodology**

This research follows a qualitative approach based on secondary data sources, including:

* Academic journals and conference papers on cloud computing.
* Case studies from organizations utilizing cloud solutions.
* Reports from cloud service providers like AWS, Microsoft Azure, and Google Cloud.
* Comparative analysis of cloud security frameworks and compliance standards.

Data analysis involves evaluating the efficiency, security measures, and business impact of cloud computing solutions across industries.

**Strengths and Concerns**

**Strengths:**

* Reduces operational and infrastructure costs.
* Provides on-demand scalability and flexibility.
* Enhances collaboration and remote accessibility.
* Offers disaster recovery and high availability.
* Improves business efficiency through AI and automation.

**Concerns:**

* Data security risks and privacy concerns.
* Compliance with regulatory frameworks (GDPR, HIPAA, etc.).
* Dependency on internet connectivity and cloud service providers.
* Risks of data loss and unauthorized access.
* Migration complexities when shifting from traditional infrastructure.

**References**

* Mell, P., & Grance, T. (2011). The NIST Definition of Cloud Computing. NIST.
* Buyya, R., Vecchiola, C., & Selvi, S. T. (2013). Mastering Cloud Computing. Elsevier.
* Armbrust, M., et al. (2010). A View of Cloud Computing. Communications of the ACM.
* Reports from AWS, Microsoft Azure, and Google Cloud on cloud adoption trends.
* Security guidelines from IEEE, ISO, and NIST on cloud computing risks.