



PROJECT REPORT

CLOUD COMPUTING  
  
MongoSafenet

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| **Created By:** | Piyush Raj Kumar | **Approved By:** | Tanmai Kamat |
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# **PROJECT DETAILS**

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| **Project Name** | MongoSafenet | | |
| **Project Sponsor** | Tushar Topale | | |
| **Project Manager** | Harshada Topale | | |
| **Start Date** | 03-08-2023 | **Completion Date** | 27/09/2023 |

# **SUMMARY**

The project aims to develop a Proof of Concept (POC) for an efficient and automated MongoDB backup solution. In the IT department at Cloud Counselage, there is a website hosted on an AWS EC2 instance, alongside a MongoDB database. The existing manual backup procedures have demonstrated inefficiency, consuming valuable time and presenting a susceptibility to human errors. The objective is to streamline the MongoDB backup process, significantly reducing time investment and enhancing productivity.

# **INTRODUCTION**

## Background

Cloud Counselage manages a website hosted on AWS, employing MongoDB as the database system. Nevertheless, the manual backup procedure for this database has evolved into a labor-intensive and time-consuming task, prompting the imperative need for an automated alternative.

## Stakeholders

* Mr. John Doe
* Harshada Topale
* Piyush Raj Kumar
* Cloud Counselage Pvt. Ltd.

## Objectives

The Principal aim is to craft a Proof of Concept (POC) for an automated MongoDB backup solution, effectively removing the need for manual backups. This POC will lay the groundwork for a more straightforward and efficient backup process, ultimately saving valuable time and effort.

# **METHODOLOGY**

## Considerations & Assumption

* MongoDB database on Windows Machine.
* AWS services can be utilized for automation like S3 & IAM.
* Backup frequency and retention policies should be defined.

## Approach

The strategy involves leveraging Windows Task Scheduler to automate database backups on AWS Cloud, supported by the development of a precisely structured script. A comprehensive architectural design will be crafted in the Proof of Concept (POC) phase.

## Activities

Activities will include:

* Research on AWS services to access S3.
* Configuring Aws Command Line Interface.
* Design and implementation of backup scripts.
* Setting up Windows Task Scheduler.
* Testing and validation.
* Documentation & Video Guide.

# **TARGETTED V/S ACHIEVED OUTPUT**

## Targeted Output

* Automated Backup: The primary objective was to establish a fully automated MongoDB backup system.
* Scheduled Backups: We aimed to implement regular and scheduled backups of the MongoDB database to ensure data integrity.
* Reduced Manual Effort: Our goal was to significantly minimize or eliminate the need for manual database backups, thereby saving time and resources.
* Reliability: We strived to ensure the reliability and resilience of the backup process to minimize downtime and data loss.
* Documentation: We intended to create comprehensive documentation outlining the automated backup process for future reference.

## Achieved Output

* Automated Backup: Our Proof of Concept (POC) successfully established a fully automated MongoDB backup system. Instead of a traditional cron job scheduler, we utilized Windows Task Scheduler.
* Scheduled Backups: We achieved daily scheduled backups, maintaining data integrity and availability.
* Reduced Manual Effort: Manual backup efforts were completely eliminated, enabling Mr. John Doe to focus on more productive tasks.
* Reliability: The implemented backup system demonstrated high reliability, resulting in minimal downtime and data loss.
* Documentation: We created detailed documentation that provides clear instructions on the backup process and system maintenance.

## Deviations

* Scheduler: We opted for Windows Task Scheduler instead of our initial plan to use a cron job scheduler. This change was necessitated by organizational constraints that made cron job scheduling impractical.
* AWS Tier: We utilized the AWS Free Tier instead of AWS Learner Labs due to organizational-level limitations. This deviation did not impact the overall success of the POC.
* IAM Usage: IAM (Identity and Access Management) features were introduced into the POC, even though they were not part of the initial plan. This addition enhanced security and access control during the implementation.

These deviations, however, did not hinder the achievement of our primary project objectives. The successful outcomes, particularly the inclusion of IAM features, have enhanced the security posture of our automated backup system. This POC has laid the groundwork for full-scale implementation, ensuring data security and efficiency. Reflecting on these deviations, we can derive valuable lessons for future projects and enhance our project management skills.

# **CONCLUSION**

Implementing an automatic MongoDB backup solution will cut down on manual work, boost productivity, and lower the chance of losing data. The POC will be the starting point for rolling this solution out on a larger scale.

# **APPENDICES**

## Detailed Description of Components

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| --- | --- | --- |
| Appendix Number | Appendix Title | Description |
| Appendix A | MongoDB Backup Script | Detailed code and instructions for the MongoDB backup script. |
| Appendix B | Windows Task Scheduler Configuration | Step-by-step guide on configuring Windows Task Scheduler. |
| Appendix C | IAM (Identity and Access Management) | Information on IAM setup and permissions used in the project. |
| Appendix D | Architectural Design | Visual representation and documentation of system architecture. |
| Appendix E | Testing and Validation | Data and results from testing and validation procedures. |
| Appendix F | Documentation & Video Guide | Comprehensive user documentation and video guide for the system. |
| Appendix G | Project Plan and Timeline | Detailed project plan, including milestones and timelines. |
| Appendix H | Deviation Analysis | Analysis of deviations encountered during the project. |
| Appendix I | Risk Assessment | Assessment of project risks and mitigation strategies. |
| Appendix J | Acknowledgments | Acknowledgments and appreciation to those involved. |