**Project Report – User’s can see Enhanced Quality of VM**

**🎯 Goal of This Project**

The goal of this project is to automate the provisioning of infrastructure on AWS using **CloudFormation**. Specifically, the project aims to:

* Create 3 IAM users (Surya, Vikram, Chaithu).
* Launch 3 individual **Windows EC2 instances** (one for each user).
* Assign permissions so each user can access only their own EC2 instance.
* Provide internet access (via Microsoft Edge) and enhance the instance with:
  + **100 GB disk space**
  + **2 GB RAM (t2.small instance)**

**🛠 Uses of CloudFormation in This Project**

CloudFormation enables **Infrastructure as Code (IaC)**. Instead of creating resources manually through the AWS console, CloudFormation automates everything using a YAML template.

**Benefits achieved:**

* **Automation:** All 3 users, 3 EC2 instances, and access policies were created in one go.
* **Consistency:** Ensures no mistakes or misconfigurations.
* **Fast Cleanup:** Entire setup deleted instantly using "Delete Stack" option.
* **Reusability:** The same template can be reused or shared with others.

**💻 EC2 Instance Specifications**

| **Feature** | **Configuration** |
| --- | --- |
| **OS** | Windows (based on AMI) |
| **Instance Type** | t2.small |
| **vCPU** | 1 |
| **RAM** | 2 GB |
| **Storage** | 100 GB (EBS volume) |
| **Network Access** | RDP (port 3389) + Internet via Microsoft Edge |
| **Key Pair** | Each user has a unique key (e.g., suryaKeyPair) |

**👨‍🏫 Steps That the User (You) Performed**

1. **Created the CloudFormation YAML Template** defining:
   * IAM users and login passwords
   * EC2 instance properties
   * Security group for RDP access
   * Key pairs and tagging
   * IAM policies to restrict instance access per user
2. **Uploaded the Template to AWS CloudFormation.**
3. **Launched the Stack**, which:
   * Automatically provisioned all resources
   * Printed IAM user credentials in the output
4. **Logged into the AWS Console as Chaithu**
   * Accessed the instance
   * Opened Microsoft Edge and browsed the internet
5. **Deleted the Stack after 5 minutes** of testing to avoid charges.

**🌐 Familiarity with Real-World IT Worklife**

This project simulates how **IT operations teams** provide virtual machines (VMs) to internal or external users:

| **Real-World Scenario** | **Project Simulation** |
| --- | --- |
| IT admin creates isolated VMs for clients/employees | CloudFormation provisions one EC2 per user |
| Each client accesses their own VM remotely | IAM users restricted to their EC2 only |
| VM has pre-installed tools (like browsers) | EC2 instances run Windows with Microsoft Edge |
| Storage/RAM adjusted per need | Used 100 GB disk and 2 GB RAM |
| Cleanup after usage | Deleted CloudFormation stack to remove all |

This is **exactly how cloud admins** provide managed infrastructure to developers, testers, or external clients, using automation tools like AWS CloudFormation, Terraform, or Ansible.

**✅ Conclusion**

This project provides a clear demonstration of how **CloudFormation simplifies and automates** the delivery of cloud infrastructure. It reflects real-world scenarios where IT admins need to deliver **isolated, secure, and internet-enabled virtual machines** for end-users — quickly, reliably, and at scale.