

AutoOps

GitHub URL : <https://github.com/sdaiproject/SDAI-Project>

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Introduction

Depending on my extensive experience, I saw that establishing a dependable, robust advanced Azure data platform was indeed vitally needed to produce valuable business insights and also a laborious and time-consuming operation, which led to the conception of this innovation. Most of the time, instead of concentrating on business objectives, data stakeholders, such as analysts, scientists, and engineers, wasted their important time manually establishing the data platform and resolving the problems. I therefore made the decision to design and develop this project as a one-stop solution that focuses on bringing the most automation and intelligence into the Azure data platform journey starting from provisioning, deployment, test, and validation. This was done in order to confront the aforementioned issue.

Objective :

Using open source tools like those in Microsoft Azure, we will automate the deployment of cloud services in this project. We will also monitor the platform that has been installed. This project makes use of cutting-edge machine learning methods to identify and automatically fix abnormalities that arise on the Azure platform.

Features :

- **Auto Deployment :** provisioning of cloud services like Data factory, synapse analytics, storage account, function apps, webapps, Data lake, etc. manually takes a lot of time. Instead If we provision these services through terraform code we can save lots of time.
- **Monitoring Platform :** We will monitor the azure data services that are present in the platform by configuring the diagnostic settings for each and every particular service.
- **Anomaly collection :** As soon as something wrong happens in the azure data platform we will be able to collect the anomaly details like what is the exact cause of the issue, what is the source of the issue, etc..

- **Auto Resolution** : We will collect all those anomaly details and feed that data to machine learning algorithms which will return the proper resolution steps in order to resolve the issue automatically without human intervention. Resolution can happen in minutes, before the business is impacted.

Technologies : To develop the project we need

- Azure Cloud
- Terraform
- Azure DevOps
- Machine learning algorithms in Python

References :

Azure services provisioning :

<https://registry.terraform.io/providers/hashicorp/azurerm/latest/docs>
<https://learn.microsoft.com/en-us/azure/developer/terraform/create-resource-group?tabs=azure-cli>

Monitoring Platform :

<https://learn.microsoft.com/en-us/azure/data-factory/monitor-configure-diagnostics>

Anomaly collection : <https://azure.microsoft.com/en-us/products/monitor/?>

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