

Architecture Design

Credit Card Defaulter

Written By	Shreyash Virendra Chawda
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Document Control

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Reviews:

Version	Date	Reviewer	Comments

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Contents

1. Introduction	1
1.1. What is Low-Level design document?.....	1
1.2. Scope.....	1
2. Architecture	2
3. Architecture Description	3
Data Description	3
Data Transformation.....	3
Data Pre-processing	3
Model Building.....	4
Data from User	4
Data Validation	4
Deployment	4
4. Unit Test Cases	5

1. Introduction

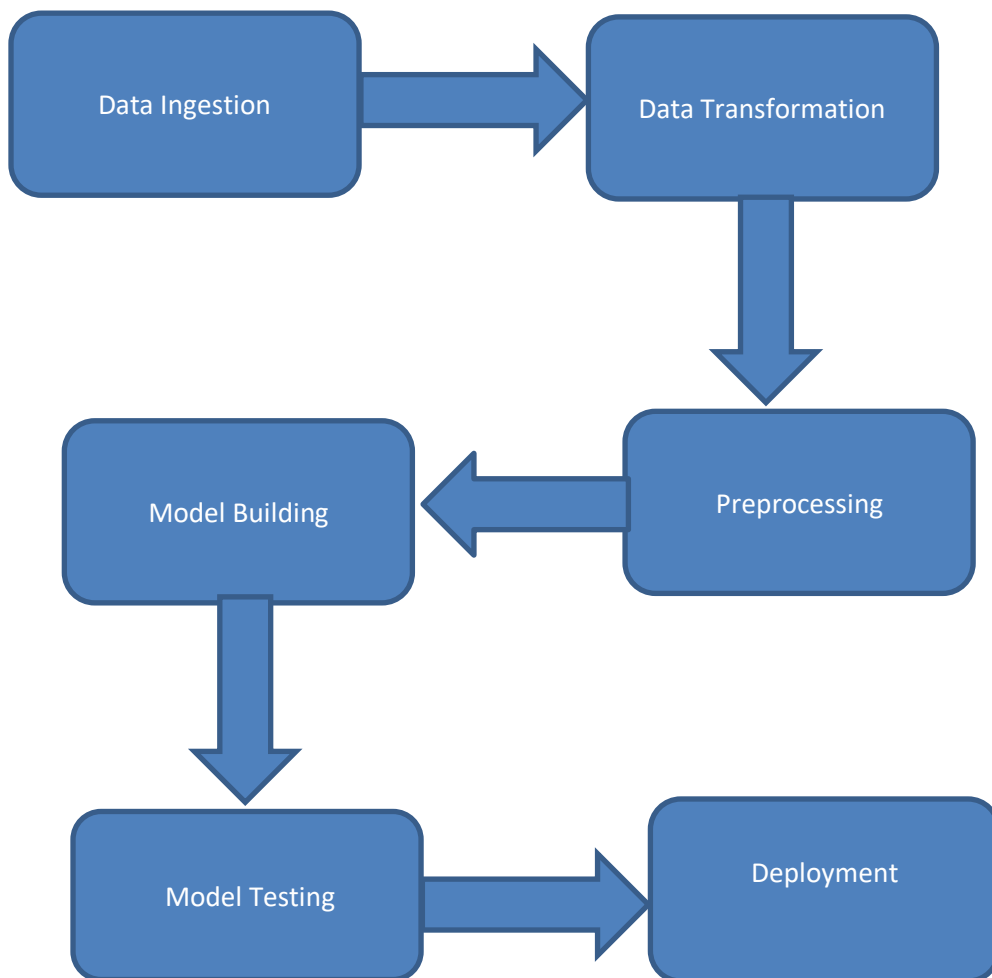
1.1. What is Low-Level design document?

The goal of LLD or a low-level design document (LLDD) is to give the internal logical design of the actual program code for CREDIT CARD DEFAULTER. LLD describes the class diagrams with the methods and relations between classes and program specs. It describes the modules so that the programmer can directly code the program from the document.

1.2. Scope

Low-level design (LLD) is a component-level design process that follows a step-by-Step refinement process. This process can be used for designing data structures, required software architecture, source code and ultimately, performance algorithms. Overall, the data organization may be defined during requirement analysis and then refined during data design work

2. Architecture



3. Architecture Description

Data Description

Dataset contains csv file with 30,000 rows and 25 columns. There are 25 independent features and 1 target dependent variable. Customer credit card payment history of last six months is taken and use it for building machine learning model for prediction.

Data Transformation

In the Transformation Process, we will read csv file and drop unwanted independent features and separate input variables and out variable.

Data Pre-processing

Data Pre-processing steps we could use are Null value handling, Remove duplicates, converting categorical data into numerical data. Creating scikit-learn column transformation pipeline to handle the flow of data.

Model Building

Splitting the data into train and test data. With help of different classifier algorithm training the data to find which model will give good accuracy and then use best model for training.

Data from Test

Here we will use test data to predict how well our model is executing with comparing the output of test data and predicted data which will give us accuracy of the model.

API

Using Flask module we had created API which can be used to insert the customer data to predict status of the customer credit card payment.

Data Validation

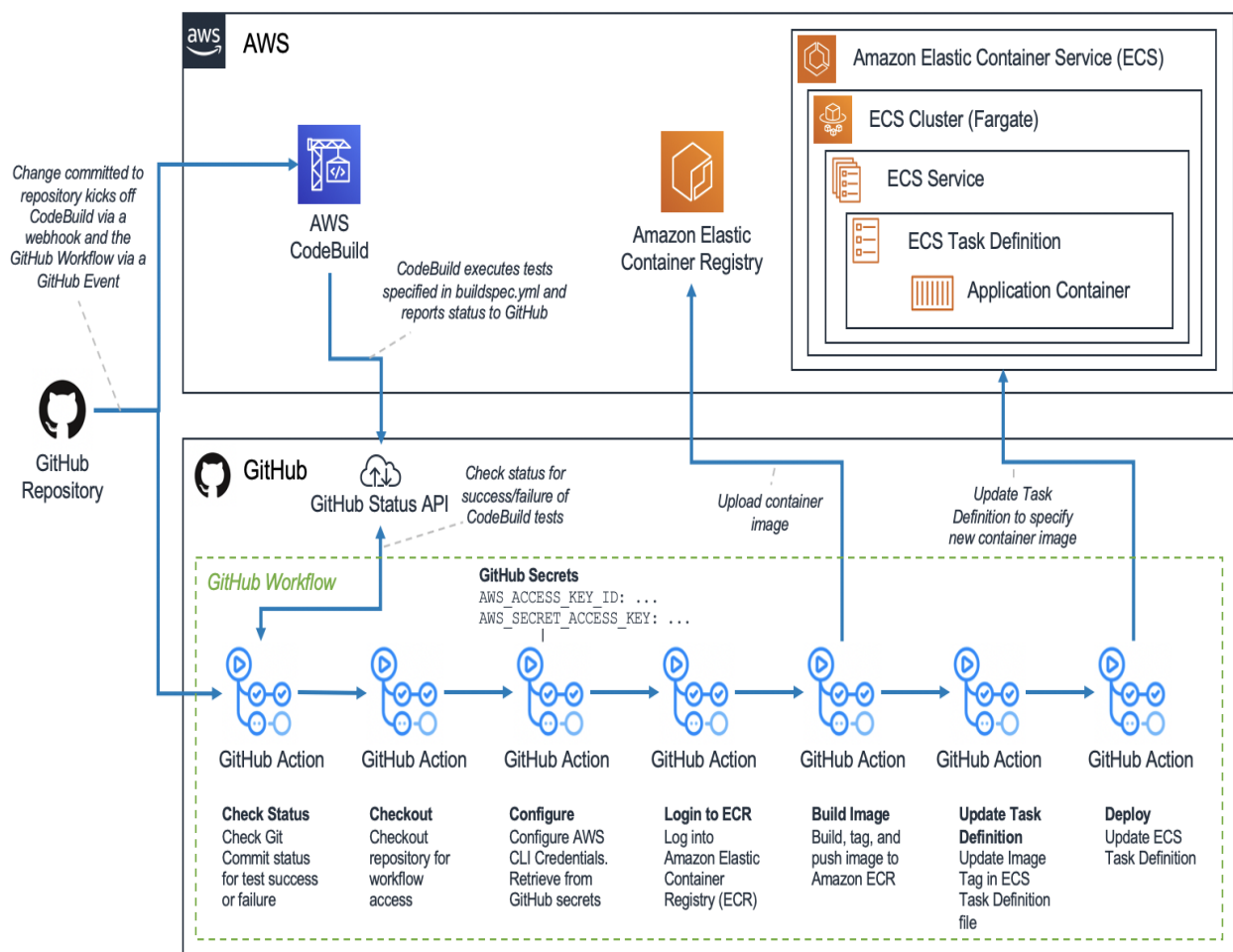
Here Data Validation will be done, given by the source.

Deployment
















We will be deploying the model to AWS with Docker and GitHub workflows is used for deployment.

4. Architecture Deployment







CI/CD PIPELINE FOR AMAZON ECS WITH GITHUB ACTION








GitHub Action Secret keys:

Repository secrets		
 <code>AWS_ACCESS_KEY_ID</code>	Updated 5 days ago	 
 <code>AWS_ECR_LOGIN_URI</code>	Updated 5 days ago	 
 <code>AWS_REGION</code>	Updated 5 days ago	 
 <code>AWS_SECRET_ACCESS_KEY</code>	Updated 5 days ago	 
 <code>ECR_REPOSITORY_NAME</code>	Updated 5 days ago	 



CI/CD Workflows Action:

← → ↺ github.com/Shreyashchawda12/credit_card_prediction/actions/runs/5586566204      

Shreyashchawda12 / credit_card_prediction     




<> Code Issues Pull requests **Actions** Projects Wiki Security Insights Settings

← workflow



 **trigger app #9** Re-run all jobs 

Summary



Jobs

-  Continuous Integration
-  Continuous Delivery
-  Continuous-Deployment

Run details




-  Usage
-  Workflow file




Triggered via push 5 days ago

 Shreyashchawda12 pushed  7fbc945 `main`

Status **Success** Total duration **3m 25s** Artifacts **-**

main.yaml
on: push

 Continuous Integration 6s →  Continuous Delivery 2m 13s →  Continuous-Deployment 38s

Annotations
5 warnings

https://github.com/Shreyashchawda12/credit_card_prediction

5. Unit Test Cases

Test Case Description	Pre-Requisite	Expected Result
Verify whether the Application URL is accessible to the user	Application URL should be defined	Application URL should be accessible to the user
Verify whether the Application loads completely for the user when the URL is accessed	Application URL is accessible	The Application should load completely for the user when the URL is accessed
Verify whether user is able to see input fields.	Application is accessible	User should be able to see input fields on logging in
Verify whether user is able to edit all input fields	Application is accessible	User should be able to edit all input fields
Verify whether user gets Submit button to submit the inputs	Application is accessible	User should get Submit button to submit the inputs
Verify whether user is presented with recommended results on clicking submit	Application is accessible	User should be presented with recommended results on clicking submit
Verify whether the recommended results are in accordance to the selections user made	Application is accessible	The recommended results should be in accordance to the selections user made

