

# Architecture Design

## CENSUS INCOME PREDICTION

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## Document Control

### Change Record:

Version	Date	Author	Comments
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### Reviews:

Version	Date	Reviewer	Comments

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## 1. Introduction

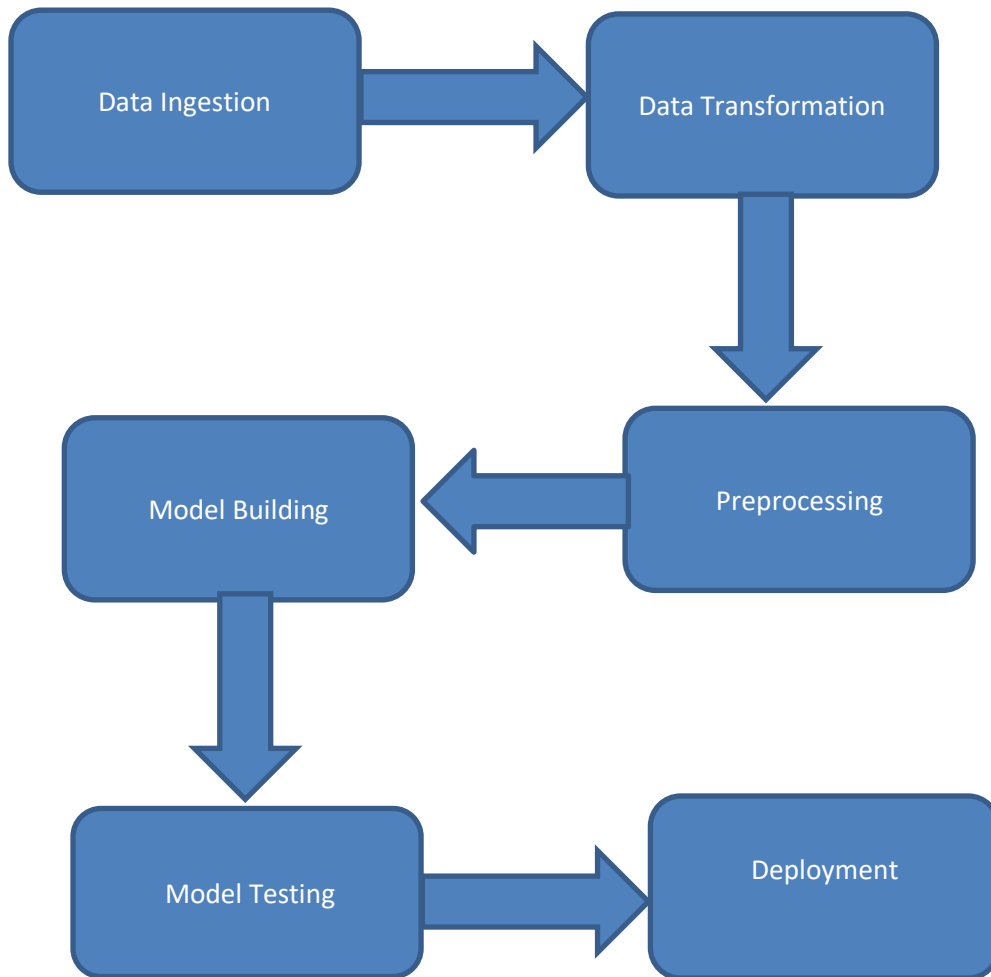
### 1.1. What is Low-Level design document?

The goal of LLD or a low-level design document (LLDD) is to give the internal logical design of the actual program code for CENSUS INCOME PREDICTION. 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 containing csv file has information which are require for census. This data was extracted from the 1994 Census bureau database by Ronny Kohavi and Barry Becker (Data Mining and Visualization, Silicon Graphics). A set of reasonably clean records was extracted using the following conditions: ((AAGE>16) && (AGI>100) && (AFNLWGT>1) && (HRSWK>0)). *The prediction task is to determine whether a person makes over \$50K a year.*

#### 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

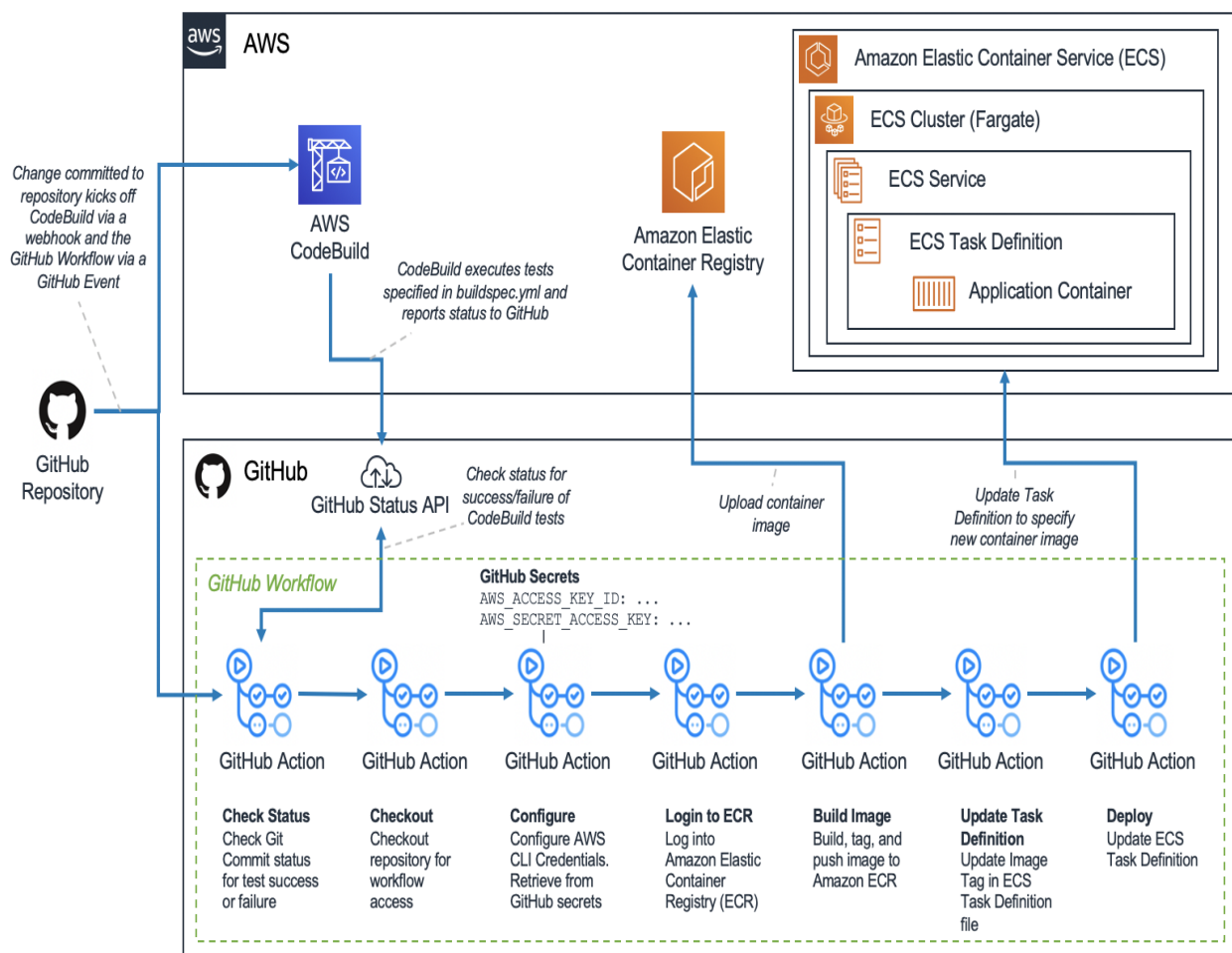
Here Data Validation will be done, given by the source.

## Deployment
















We will be deploying the model to AWS. Also Docker is used for deployment.

## 4. Architecture Deployment







### CI/CD PIPELINE FOR AMAZON ECS WITH GITHUB ACTION









GitHub Action Secret keys:

Repository secrets			
	AWS_ACCESS_KEY_ID	Updated 3 days ago	 
	AWS_ECR_LOGIN_URL	Updated yesterday	 
	AWS_REGION	Updated 3 days ago	 
	AWS_SECRET_ACCESS_KEY	Updated 3 days ago	 
	ECR_REPOSITORY_NAME	Updated yesterday	 

CI/CD Workflows Action:

← → ↺ [github.com/Shreyashchawda12/Census\\_Income/actions/runs/5630878583](https://github.com/Shreyashchawda12/Census_Income/actions/runs/5630878583)      

Shreyashchawda12 / Census\_Income       

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

← workflow

✓ Merge branch 'main' of https://github.com/Shreyashchawda12/Census\_Income #8 Re-run all jobs ...

Summary




Jobs

- ✓ Continuous Integration
- ✓ Continuous Delivery
- ✓ Continuous-Deployment

Run details

- Usage
- Workflow file




Triggered via push yesterday

 Shreyashchawda12 pushed  f5c96e7  main

Status: Success Total duration: 3m 10s Artifacts: -

**main.yaml**  
on: push

Continuous Integration 10s → Continuous Delivery 1m 59s → Continuous-Deployment 34s



## 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



