MainActivity.java

```java
package com.akash.smarttoiletalert;

import android.app.ProgressDialog;
import android.content.Intent;
import android.content.SharedPreferences;
import android.os.Bundle;
import android.os.Handler;
import android.view.MenuItem;
import android.widget.TextView;

import androidx.annotation.NonNull;
import androidx.appcompat.app.ActionBarDrawerToggle;
import androidx.appcompat.app.AppCompatActivity;
import androidx.drawerlayout.widget.DrawerLayout;

import com.google.firebase.database.DatabaseReference;
import com.google.firebase.database.FirebaseDatabase;


public class MainActivity extends AppCompatActivity {
    DatabaseReference databaseReference ;
    FirebaseDatabase firebaseDatabase;
    Member check;
    private TextView name;
    private static int SPLASH_TIME_OUT=3000;
    public DrawerLayout drawerLayout;
    public ActionBarDrawerToggle actionBarDrawerToggle;
    private ProgressDialog loadingbar;




    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        loadingbar=new ProgressDialog(this);
        loadingbar.setTitle("    Loading Your HomePage  ");
        loadingbar.setMessage("please wait, while we are get into your account..");
        loadingbar.show();
        loadingbar.setCanceledOnTouchOutside(true);

        firebaseDatabase= FirebaseDatabase.getInstance();
        databaseReference = firebaseDatabase.getInstance("https://smart-alert-toilet-default-
rtdb.asia-southeast1.firebasedatabase.app/").getReference("RAMANI");
    new Handler().postDelayed(new Runnable() {
```

```java
        @Override
        public void run() {
            SharedPreferences sharedPreferences=getSharedPreferences(loginpage.PREFS_NAME,0);
            boolean hasloggedin=sharedPreferences.getBoolean("hasloggedin",false);
            if(hasloggedin){
                startActivity(new Intent(MainActivity.this, Home.class));
                finish();
                loadingbar.dismiss();
            }
            else
            {
                startActivity(new Intent(MainActivity.this,loginpage.class));
                finish();
                loadingbar.dismiss();
            }
        }
    },SPLASH_TIME_OUT);
        // drawer layout instance to toggle the menu icon to open
        // drawer and back button to close drawer
        drawerLayout = findViewById(R.id.my_drawer_layout);
        actionBarDrawerToggle = new ActionBarDrawerToggle(this, drawerLayout, R.string.nav_open,
R.string.nav_close);

        // pass the Open and Close toggle for the drawer layout listener
        // to toggle the button
        drawerLayout.addDrawerListener(actionBarDrawerToggle);
        actionBarDrawerToggle.syncState();

        // to make the Navigation drawer icon always appear on the action bar
        getSupportActionBar().setDisplayHomeAsUpEnabled(true);
    }

    // override the onOptionsItemSelected()
    // function to implement
    // the item click listener callback
    // to open and close the navigation
    // drawer when the icon is clicked
    @Override
    public boolean onOptionsItemSelected(@NonNull MenuItem item) {

        if (actionBarDrawerToggle.onOptionsItemSelected(item)) {
            return true;
        }
        return super.onOptionsItemSelected(item);
    }
}
```

activity_main.xml

```java
package com.akash.smarttoiletalert;

import android.app.ProgressDialog;
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import android.content.SharedPreferences;
import android.os.Bundle;
import android.os.Handler;
import android.view.MenuItem;
import android.widget.TextView;

import androidx.annotation.NonNull;
import androidx.appcompat.app.ActionBarDrawerToggle;
import androidx.appcompat.app.AppCompatActivity;
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import com.google.firebase.database.DatabaseReference;
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        loadingbar=new ProgressDialog(this);
        loadingbar.setTitle("    Loading Your HomePage  ");
        loadingbar.setMessage("please wait, while we are get into your account..");
        loadingbar.show();
        loadingbar.setCanceledOnTouchOutside(true);

        firebaseDatabase= FirebaseDatabase.getInstance();
        databaseReference = firebaseDatabase.getInstance("https://smart-alert-toilet-default-rtdb.asia-southeast1.firebasedatabase.app/").getReference("RAMANI");
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```java
        new Handler().postDelayed(new Runnable() {
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                    loadingbar.dismiss();
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}
```

loginpage.xml

```java
package com.akash.smarttoiletalert;

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import android.content.SharedPreferences;
import android.os.Bundle;
import android.os.Handler;
import android.view.MenuItem;
import android.widget.TextView;

import androidx.annotation.NonNull;
import androidx.appcompat.app.ActionBarDrawerToggle;
import androidx.appcompat.app.AppCompatActivity;
import androidx.drawerlayout.widget.DrawerLayout;

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                finish();
                loadingbar.dismiss();
            }
            else
            {
                startActivity(new Intent(MainActivity.this,loginpage.class));
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        }
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    public boolean onOptionsItemSelected(@NonNull MenuItem item) {

        if (actionBarDrawerToggle.onOptionsItemSelected(item)) {
            return true;
        }
        return super.onOptionsItemSelected(item);
    }


}
```

TOILET.ipynb

```python
import numpy as np

import pandas as pd

import seaborn as sns

import holoviews as hv

from holoviews import opts

hv.extension('bokeh')

from matplotlib import pyplot as plt

from sklearn.model_selection import train_test_split

from sklearn.preprocessing import StandardScaler, LabelEncoder

import os

from prophet import Prophet

from prophet.plot import add_changepoints_to_plot

import plotly.express as px


data=pd.read_excel("/Users/akashramjeevanandham/Documents/EDA/lavatoryData.xlsx")


data.head()

#checking for first row and column

data['Toilet_virtual_outdoor_temp'].value_counts()

data['Date'] = pd.to_datetime(data['Date'], format='%Y-%m-%d %H:%M:%S')

data['year'] = data['Date'].apply(lambda x : int(x.year))

data['month'] = data['Date'].apply(lambda x : int(x.month))

data['day'] = data['Date'].apply(lambda x : int(x.day))

data['weekday'] = data['Date'].apply(lambda x : x.day_name())

data['weekofyear'] = data['Date'].apply(lambda x : int(x.weekofyear))

data['hour'] = data['Date'].apply(lambda x : int(x.hour))

data['Time'] = data['Date'].apply(lambda x : int(x.minute))

data.head(3)
```

```python
def month2seasons(x):
    if x in [12, 1, 2]:
        season = 'Winter'
    elif x in [3, 4, 5]:
        season = 'Summer'
    elif x in [6, 7, 8, 9]:
        season = 'Monsoon'
    elif x in [10, 11]:
        season = 'Post_Monsoon'
    return season


def hours2timing(x):
    if x in [22,23,0,1,2,3]:
        timing = 'Night'
    elif x in range(4, 12):
        timing = 'Morning'
    elif x in range(12, 17):
        timing = 'Afternoon'
    elif x in range(17, 22):
        timing = 'Evening'
    else:
        timing = 'X'
    return timing


mean_methane=data['Methane'].mean()

mean_ir=data['IR'].mean()

mean_out=data['Toilet_virtual_outdoor_temp'].mean()


# Replace NaNs in column S2 with the

# mean of values in the same column

data['Methane'].fillna(value=mean_methane, inplace=True)
```

```python
data['IR'].fillna(value=mean_ir, inplace=True)

data['Toilet_virtual_outdoor_temp'].fillna(value=mean_out, inplace=True)


fig, axs = plt.subplots(1,2, figsize=(10,5))

sns.distplot(data.IR, color="blue", ax=axs[0])

sns.boxplot(data.Methane, color="red", ax=axs[1])

month_agg = data.groupby('month').agg({'Toilet_temp': ['min', 'max']})

month_maxmin =
pd.merge(month_agg['Toilet_temp']['max'],month_agg['Toilet_temp']['min'],right_index=True,left_in
dex=True)

month_maxmin = pd.melt(month_maxmin.reset_index(),
['month']).rename(columns={'season':'month', 'variable':'Max/Min'})

hv.Bars(month_maxmin, ['month', 'Max/Min'], 'value').opts(title="Temperature by Month Max/Min",
ylabel="Temperature")\

                                                .opts(opts.Bars(width=700,
height=300,tools=['hover'],show_grid=True))
```