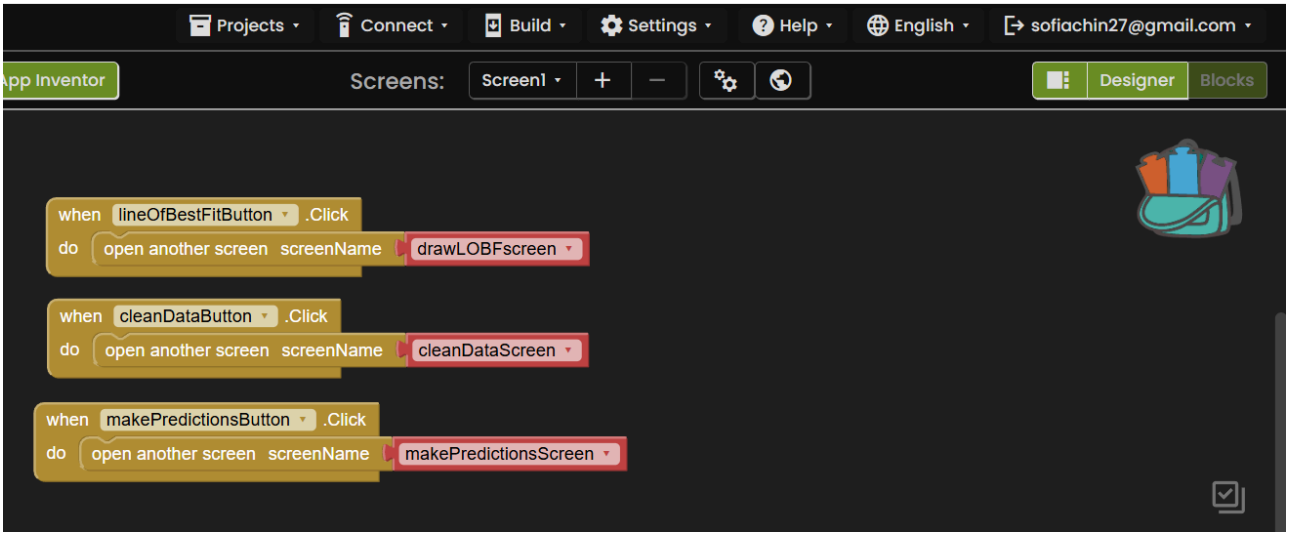
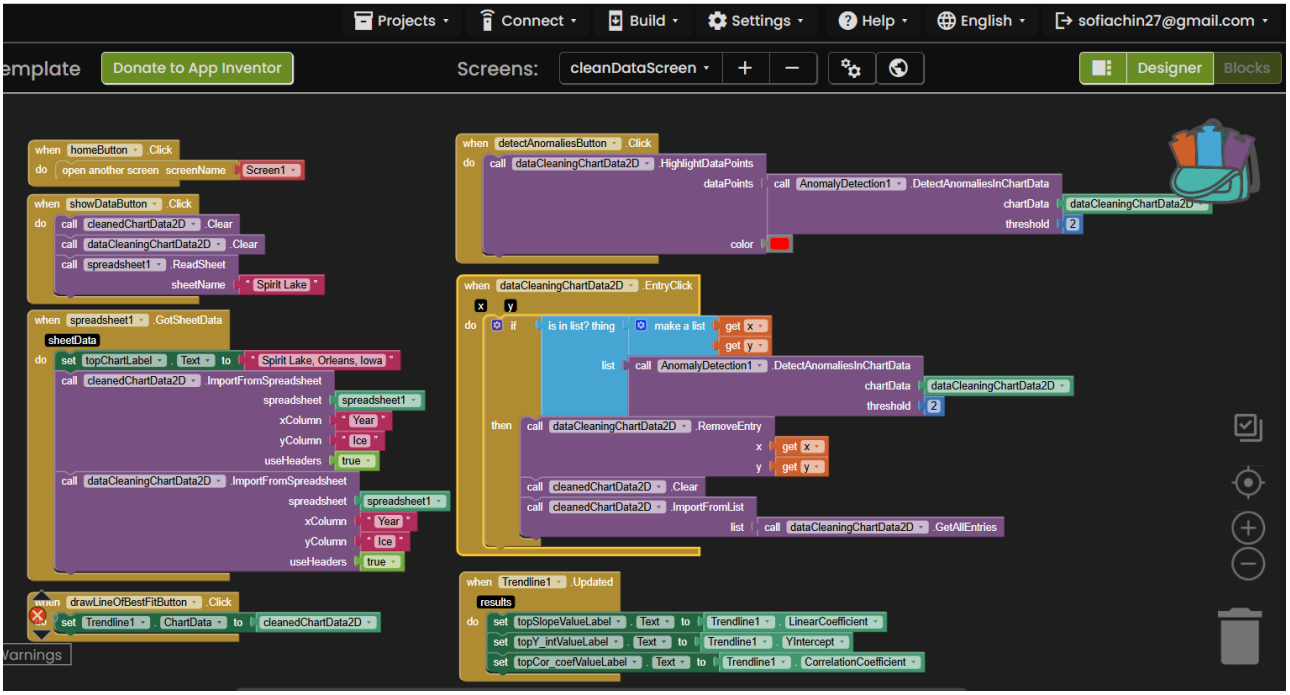
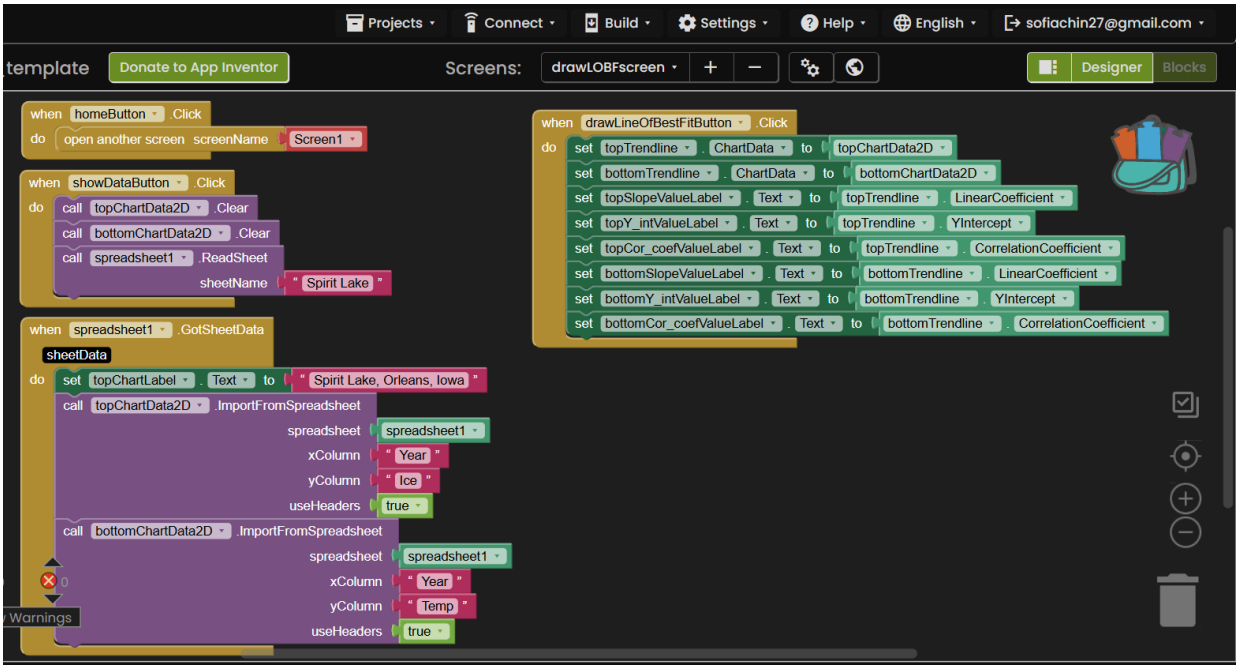
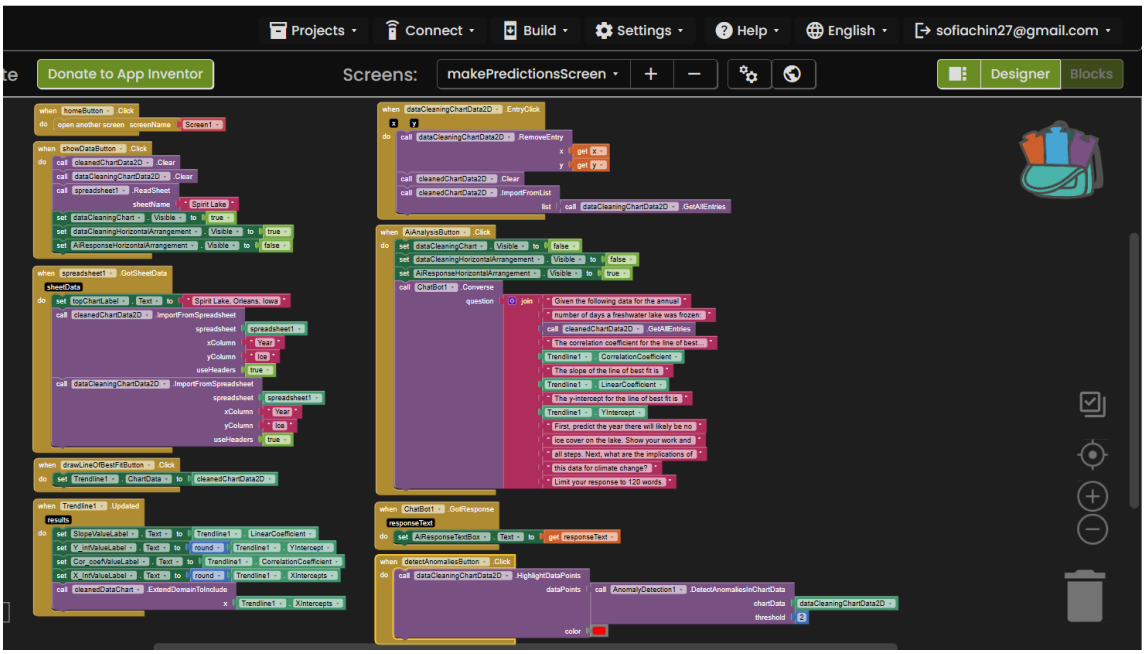
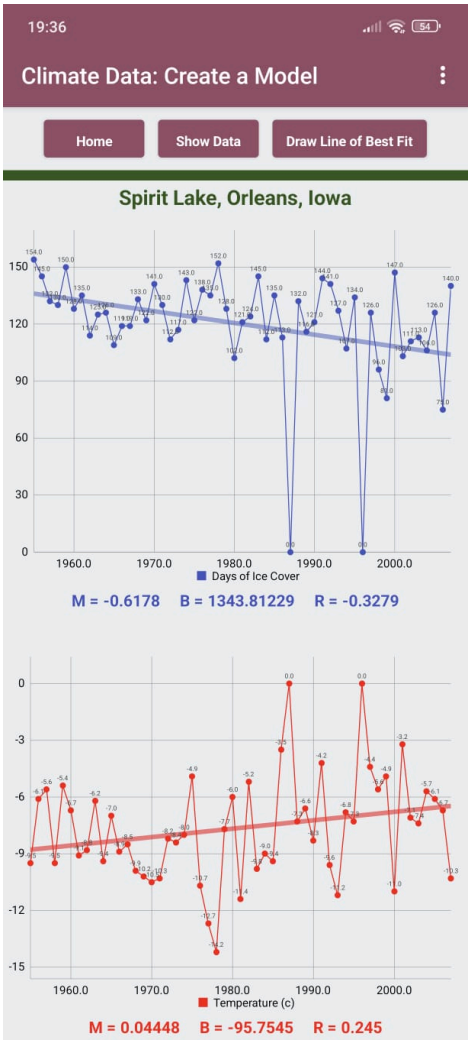

Projects
Connect
Build
Settings
Help
English
sofiachin27@gmail.com
App Inventor
Screens:
Screen1
Designer
Blocks
when lineOfBestFitButton .Click
do open another screen screenName drawLOBFscreen
when cleanDataButton .Click
do open another screen screenName cleanDataScreen
when makePredictionsButton .Click
do open another screen screenName makePredictionsScreen

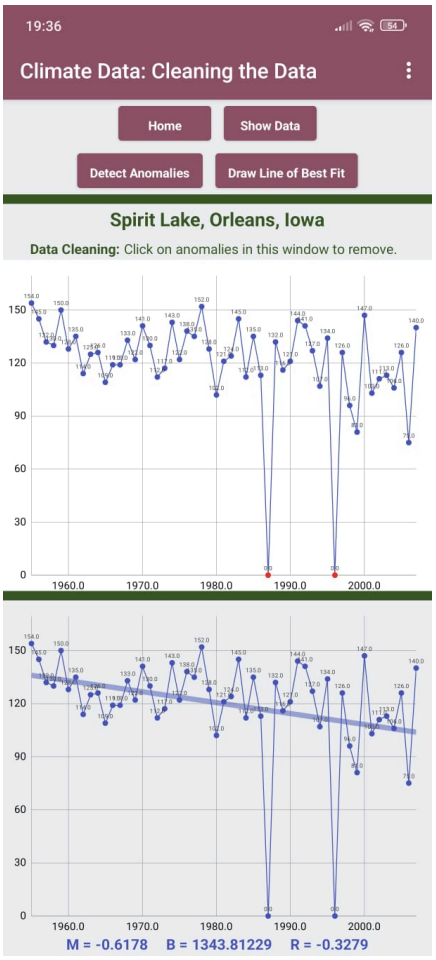

Projects
Connect
Build
Settings
Help
English
sofiachin27@gmail.com
Donate to App Inventor
Screens:
cleanDataScreen
Designer
Blocks
when homeButton .Click
do open another screen screenName Screen1
when showDataButton .Click
do call cleanedChartData2D .Clear
call dataCleaningChartData2D .Clear
call spreadsheet1 .ReadSheet
sheetName Spirit Lake
when spreadsheet1 .GotSheetData
sheetData
do set topChartLabel . Text to Spirit Lake, Orleans, Iowa
call cleanedChartData2D .ImportFromSpreadsheet
spreadsheet spreadsheet1
xColumn Year
yColumn Ice
useHeaders true
call dataCleaningChartData2D .ImportFromSpreadsheet
spreadsheet spreadsheet1
xColumn Year
yColumn Ice
useHeaders true
when drawLineOfBestFitButton .Click
do set Trendline1 . ChartData to cleanedChartData2D
Warnings
when detectAnomaliesButton .Click
do call dataCleaningChartData2D .HighlightDataPoints
dataPoints call AnomalyDetection1 .DetectAnomaliesInChartData
chartData dataCleaningChartData2D
threshold 2
color
when dataCleaningChartData2D .EntryClick
x y
do if is in list? thing make a list get x get y
list call AnomalyDetection1 .DetectAnomaliesInChartData
chartData dataCleaningChartData2D
threshold 2
then call dataCleaningChartData2D .RemoveEntry
x get x
y get y
call cleanedChartData2D .Clear
call cleanedChartData2D .ImportFromList
list call dataCleaningChartData2D .GetAllEntries
when Trendline1 .Updated
results
do set topSlopeValueLabel . Text to Trendline1 . LinearCoefficient
set topY_intValueLabel . Text to Trendline1 . YIntercept
set topCor_coefValueLabel . Text to Trendline1 . CorrelationCoefficient

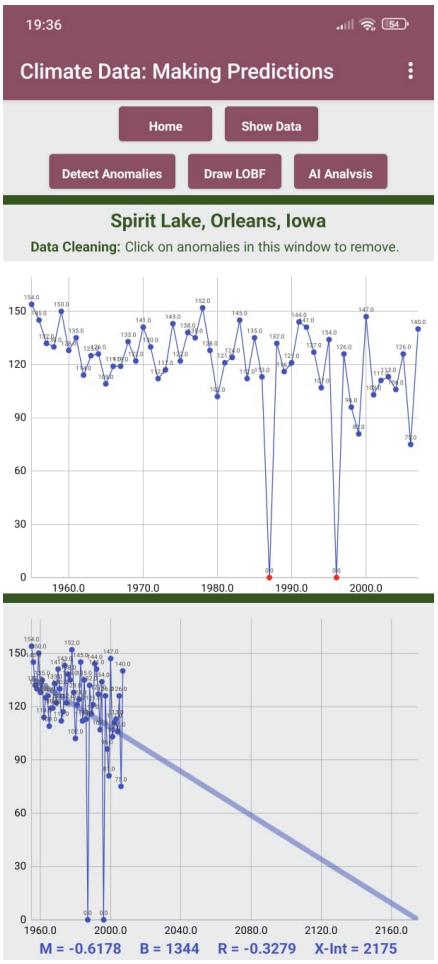

Projects
Connect
Build
Settings
Help
English
sofiachin27@gmail.com
Donate to App Inventor
Screens:
drawLOBFscreen
Designer
Blocks
when homeButton .Click
do open another screen screenName Screen1
when showDataButton .Click
do call topChartData2D .Clear
call bottomChartData2D .Clear
call spreadsheet1 .ReadSheet
sheetName Spirit Lake
when spreadsheet1 .GotSheetData
sheetData
do set topChartLabel . Text to Spirit Lake, Orleans, Iowa
call topChartData2D .ImportFromSpreadsheet
spreadsheet spreadsheet1
xColumn Year
yColumn Ice
useHeaders true
call bottomChartData2D .ImportFromSpreadsheet
spreadsheet spreadsheet1
xColumn Year
yColumn Temp
useHeaders true
Warnings
when drawLineOfBestFitButton .Click
do set topTrendline . ChartData to topChartData2D
set bottomTrendline . ChartData to bottomChartData2D
set topSlopeValueLabel . Text to topTrendline . LinearCoefficient
set topY_intValueLabel . Text to topTrendline . YIntercept
set topCor_coefValueLabel . Text to topTrendline . CorrelationCoefficient
set bottomSlopeValueLabel . Text to bottomTrendline . LinearCoefficient
set bottomY_intValueLabel . Text to bottomTrendline . YIntercept
set bottomCor_coefValueLabel . Text to bottomTrendline . CorrelationCoefficient

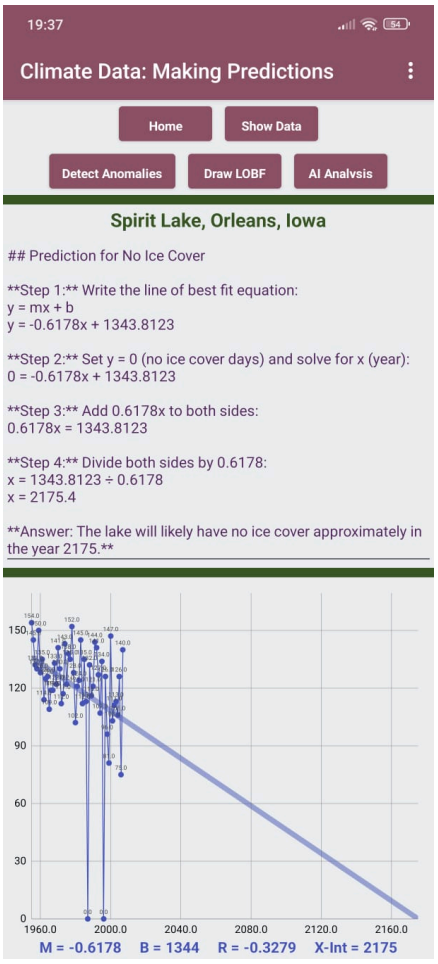

Projects
Connect
Build
Settings
Help
English
sofiachin27@gmail.com
Donate to App Inventor
Screens:
makePredictionsScreen
Designer
Blocks

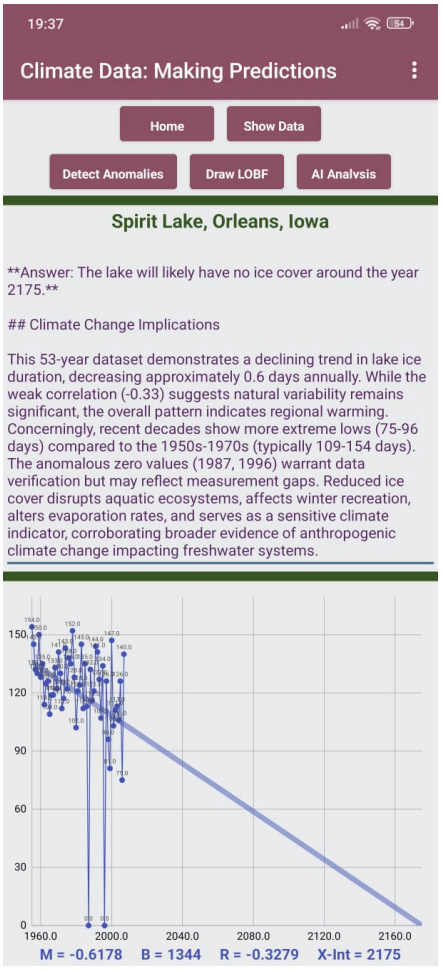

19:36
Climate Data Predictions
Choose a Procedure:
Draw Line of Best Fit
Clean Data
Make Predictions


19:36
Climate Data: Create a Model
Home
Show Data
Draw Line of Best Fit
Spirit Lake, Orleans, Iowa
Days of Ice Cover
M = -0.6178 B = 1343.81229 R = -0.3279
Temperature (c)
M = 0.04448 B = -95.7545 R = 0.245


19:36
Climate Data: Cleaning the Data
Home
Show Data
Detect Anomalies
Draw Line of Best Fit
Spirit Lake, Orleans, Iowa
Data Cleaning: Click on anomalies in this window to remove.
M = -0.6178 B = 1343.81229 R = -0.3279


19:36
Climate Data: Making Predictions
Home
Show Data
Detect Anomalies
Draw LOBF
AI Analysis
Spirit Lake, Orleans, Iowa
Data Cleaning: Click on anomalies in this window to remove.
M = -0.6178 B = 1344 R = -0.3279 X-Int = 2175


19:37
Climate Data: Making Predictions
Home
Show Data
Detect Anomalies
Draw LOBF
AI Analysis
Spirit Lake, Orleans, Iowa
Prediction for No Ice Cover
Step 1: Write the line of best fit equation:
y = mx + b
y = -0.6178x + 1343.8123
Step 2: Set y = 0 (no ice cover days) and solve for x (year):
0 = -0.6178x + 1343.8123
Step 3: Add 0.6178x to both sides:
0.6178x = 1343.8123
Step 4: Divide both sides by 0.6178:
x = 1343.8123 ÷ 0.6178
x = 2175.4
Answer: The lake will likely have no ice cover approximately in the year 2175.
M = -0.6178 B = 1344 R = -0.3279 X-Int = 2175


19:37
Climate Data: Making Predictions
Home
Show Data
Detect Anomalies
Draw LOBF
AI Analysis
Spirit Lake, Orleans, Iowa
Answer: The lake will likely have no ice cover around the year 2175.
Climate Change Implications
This 53-year dataset demonstrates a declining trend in lake ice duration, decreasing approximately 0.6 days annually. While the weak correlation (-0.33) suggests natural variability remains significant, the overall pattern indicates regional warming. Concerningly, recent decades show more extreme lows (75-96 days) compared to the 1950s-1970s (typically 109-154 days). The anomalous zero values (1987, 1996) warrant data verification but may reflect measurement gaps. Reduced ice cover disrupts aquatic ecosystems, affects winter recreation, alters evaporation rates, and serves as a sensitive climate indicator, corroborating broader evidence of anthropogenic climate change impacting freshwater systems.
M = -0.6178 B = 1344 R = -0.3279 X-Int = 2175