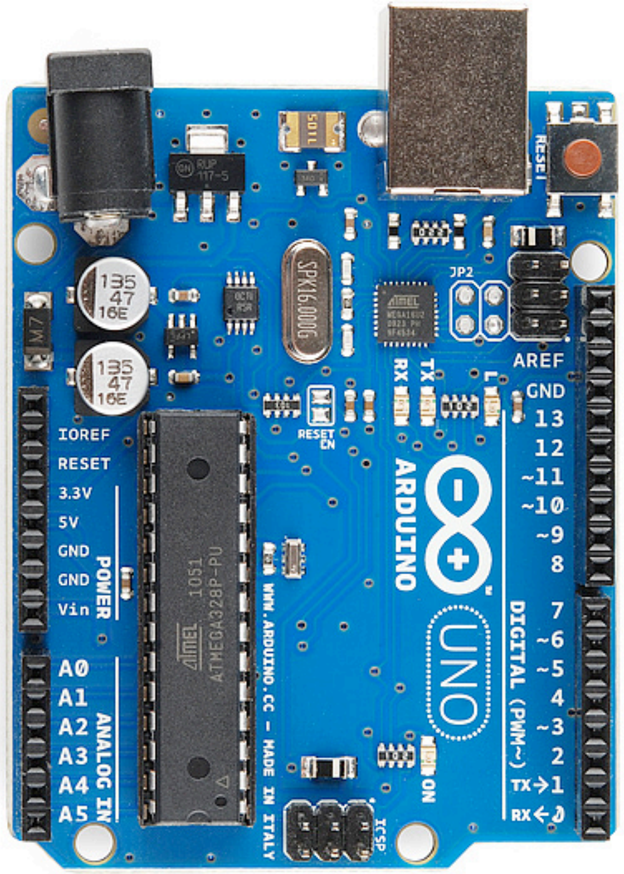
Hands On: IOT with ML

Introduction to Raspberry Pico and Machine Learning

Sakib Dalal, Harshit Rawal

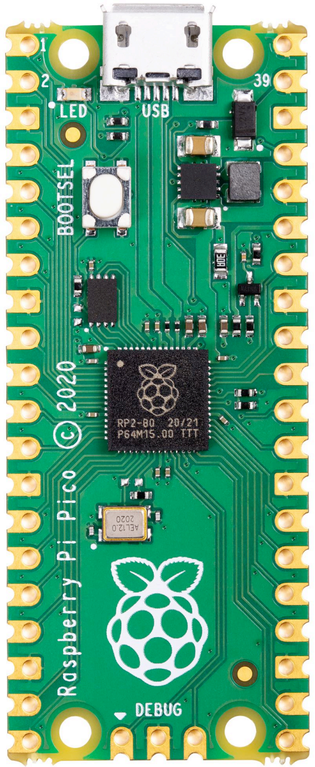
Micro Controllers

Arduino UNO

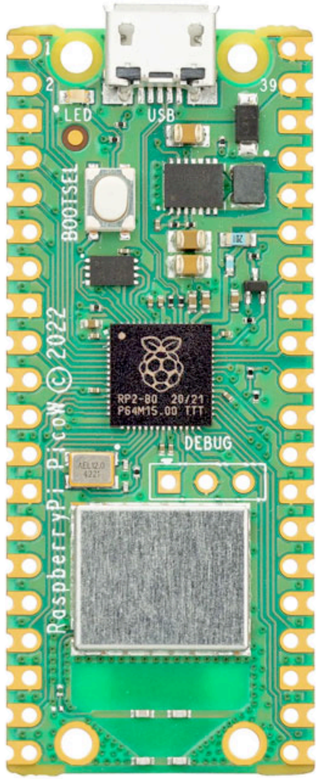


Raspberry Pi

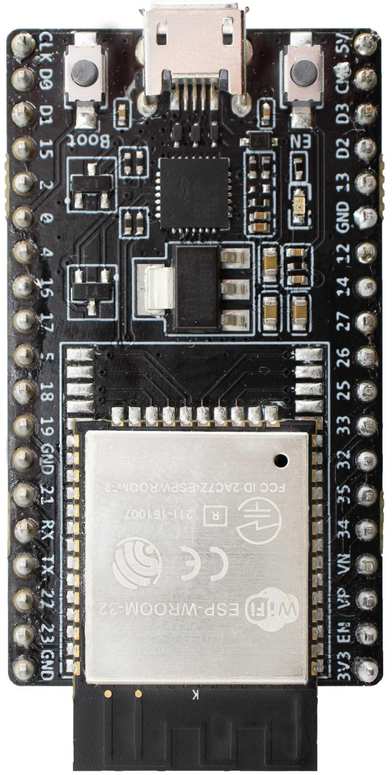
Pico



Pico W

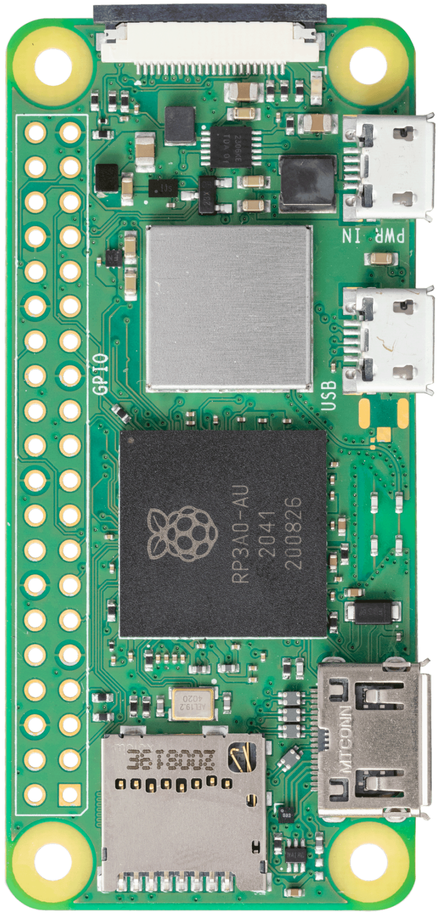


ESP32

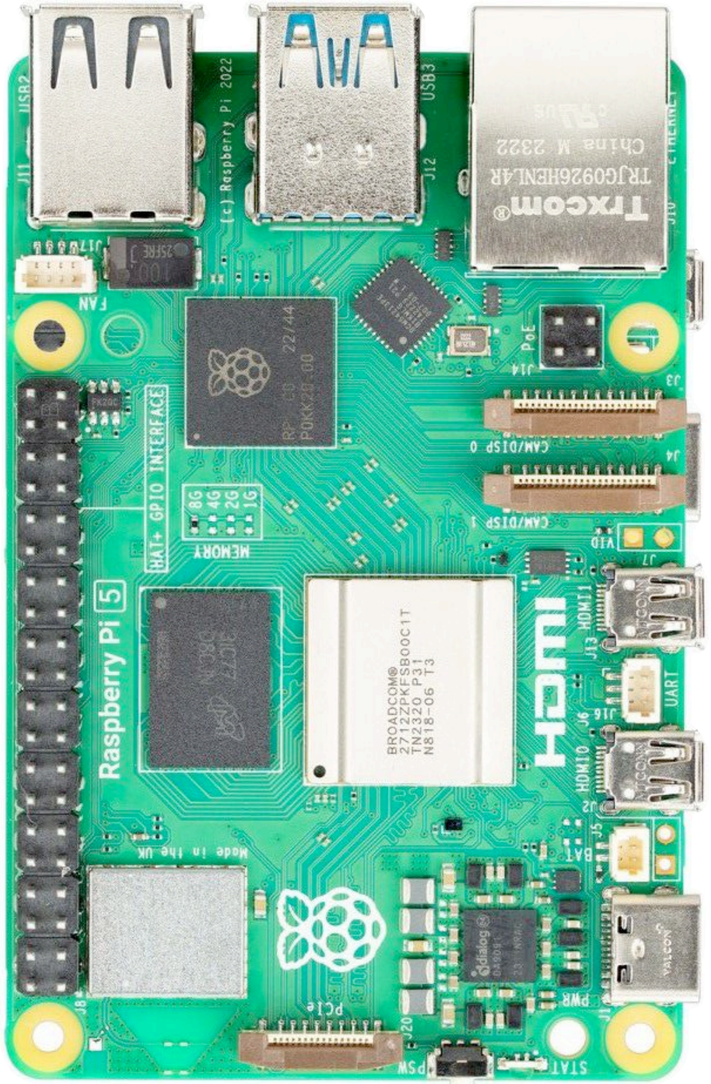


Credit Card Size Computers

Raspberry Pi Zero 2 W



Raspberry Pi 5



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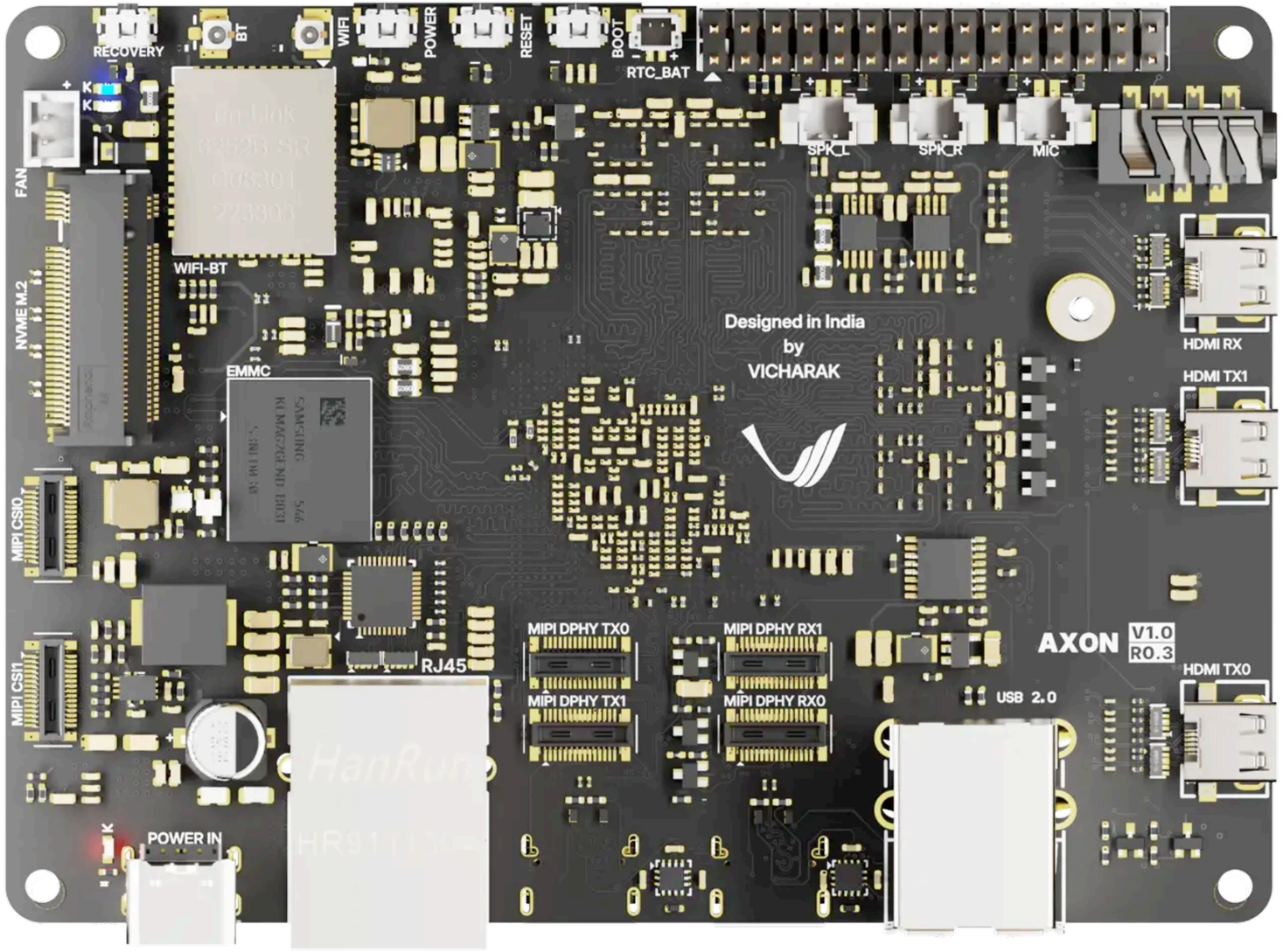
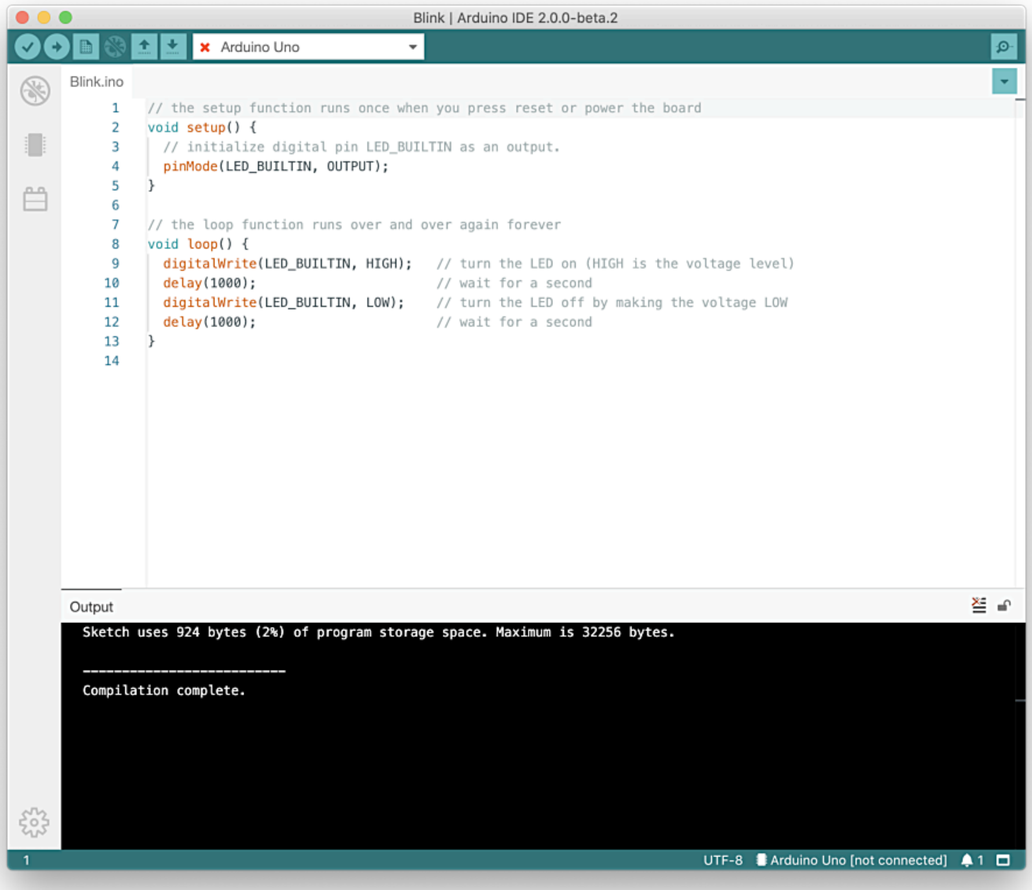
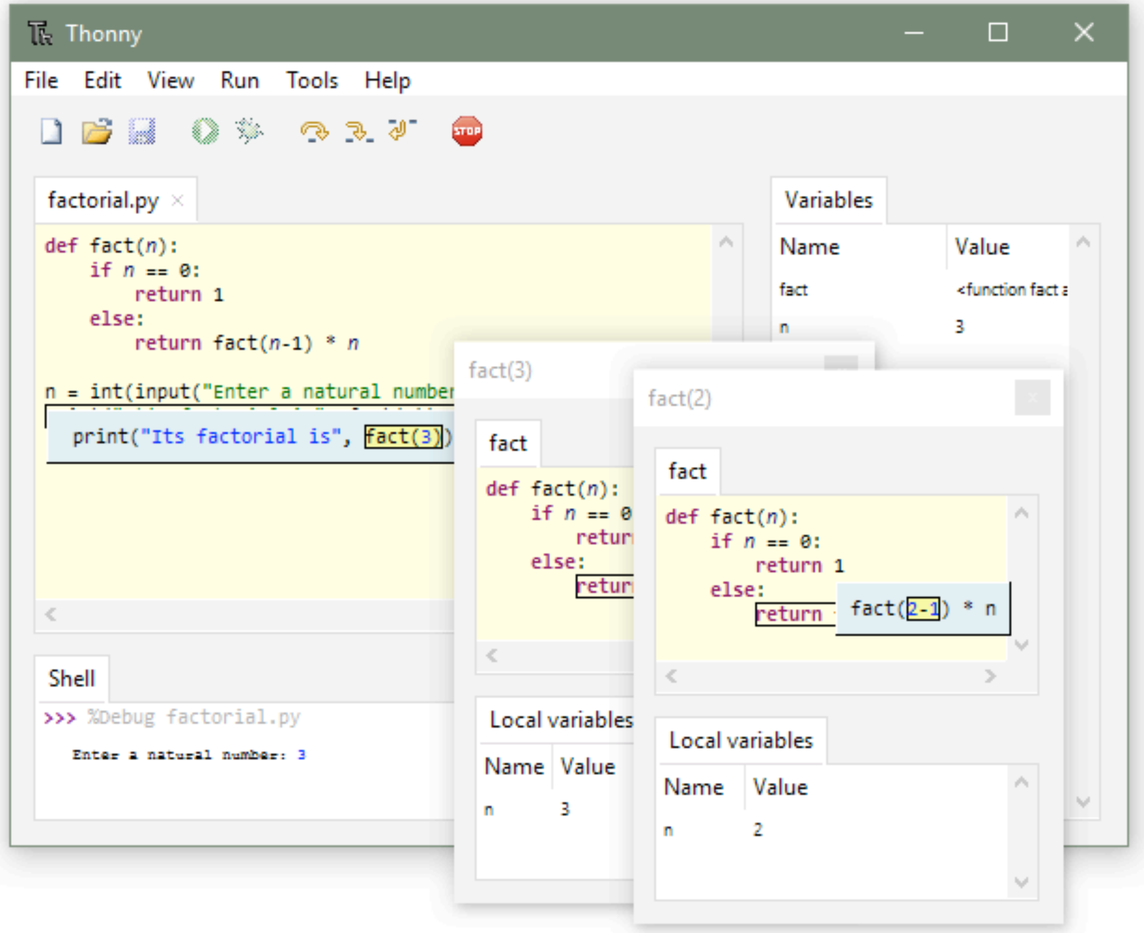


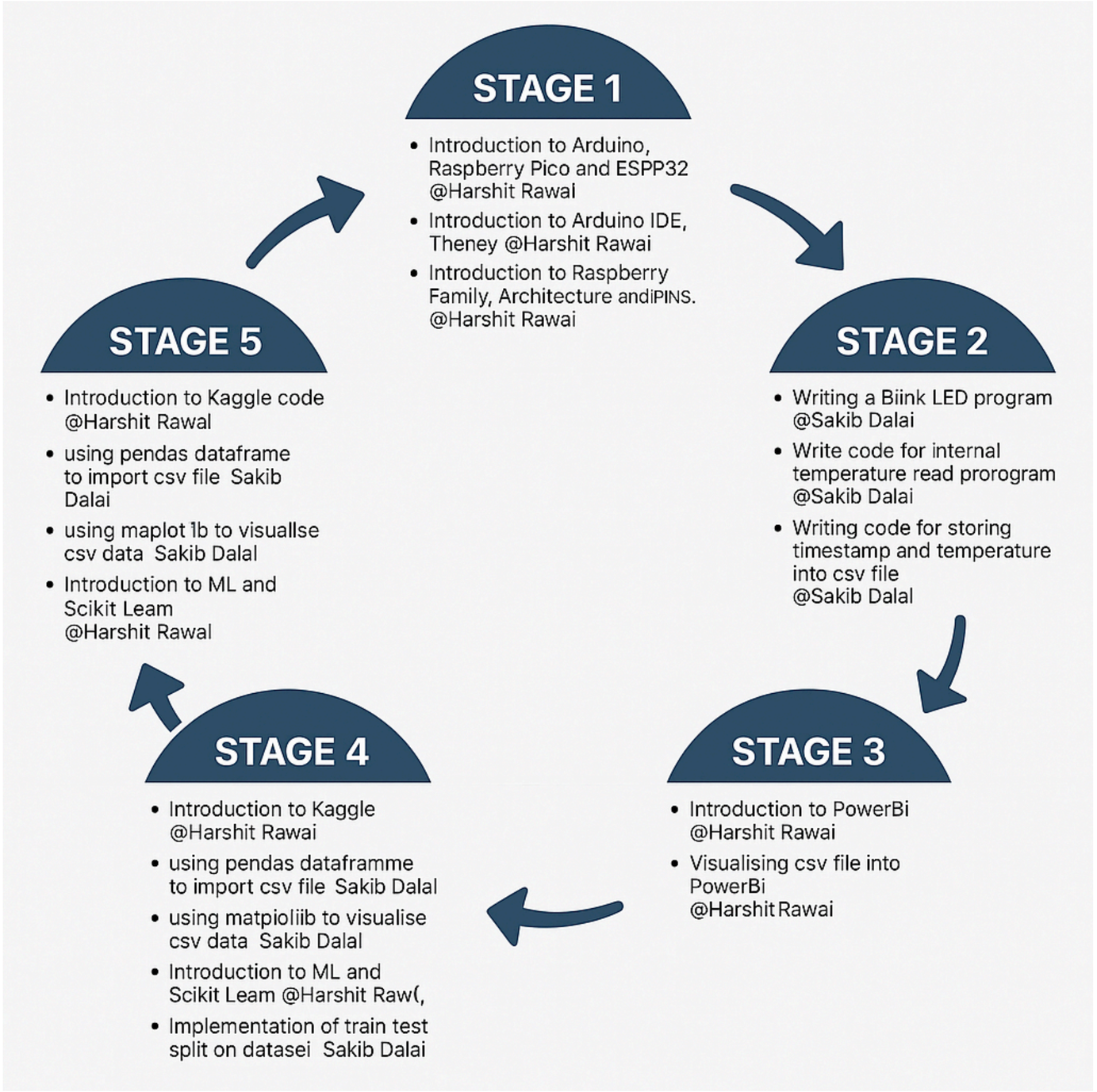
Arduino IDE



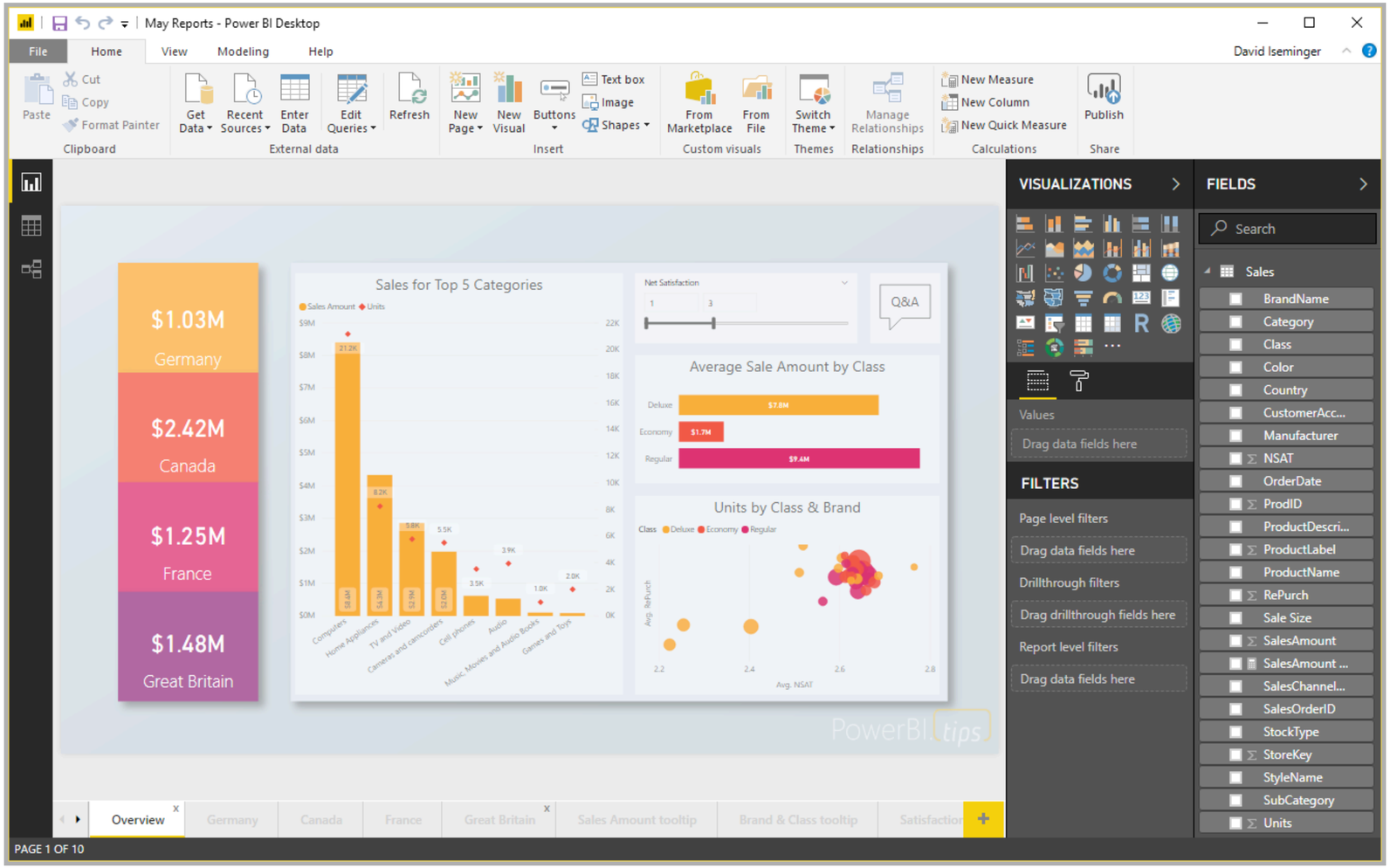
Thonny



Stages


STAGE 1
• Introduction to Arduino, Raspberry Pico and ESPP32 @Harshit Rawai
• Introduction to Arduino IDE, Theney @Harshit Rawai
• Introduction to Raspberry Family, Architecture andiPINS. @Harshit Rawai
STAGE 2
• Writing a Biink LED program @Sakib Dalai
• Write code for internal temperature read prorogram @Sakib Dalai
• Writing code for storing timestamp and temperature into csv file @Sakib Dalai
STAGE 3
• Introduction to PowerBi @Harshit Rawai
• Visualising csv file into PowerBi @Harshit Rawai
STAGE 4
• Introduction to Kaggle @Harshit Rawai
• using pendas dataframme to import csv file Sakib Dalai
• using matpioliib to visualise csv data Sakib Dalai
• Introduction to ML and Scikit Leam @Harshit Raw(,
• Implementation of train test split on datasei Sakib Dalai
STAGE 5
• Introduction to Kaggle code @Harshit Rawal
• using pendas dataframe to import csv file Sakib Dalai
• using maplot 1b to visuallse csv data Sakib Dalal
• Introduction to ML and Scikit Leam @Harshit Rawal

Power BI


May Reports - Power BI Desktop
File
Home
View
Modeling
Help
David Iseminger
Paste
Cut
Copy
Format Painter
Clipboard
Get Data
Recent Sources
Enter Data
Edit Queries
Refresh
External data
New Page
New Visual
Buttons
Text box
Image
Shapes
Insert
From Marketplace
From File
Custom visuals
Switch Theme
Themes
Manage Relationships
Relationships
New Measure
New Column
New Quick Measure
Calculations
Publish
Share
$1.03M
Germany
$2.42M
Canada
$1.25M
France
$1.48M
Great Britain
Sales for Top 5 Categories
Net Satisfaction
Q&A
Average Sale Amount by Class
Deluxe
Economy
Regular
Units by Class & Brand
Class
Avg. RePurch
Avg. NSAT
PowerBI tips
VISUALIZATIONS
Values
Drag data fields here
FILTERS
Page level filters
Drag data fields here
Drillthrough filters
Drag drillthrough fields here
Report level filters
Drag data fields here
FIELDS
Search
Sales
BrandName
Category
Class
Color
Country
CustomerAcc...
Manufacturer
NSAT
OrderDate
ProdID
ProductDescri...
ProductLabel
ProductName
RePurch
Sale Size
SalesAmount
SalesAmount ...
SalesChannel...
SalesOrderID
StockType
StoreKey
StyleName
SubCategory
Units
Overview
Germany
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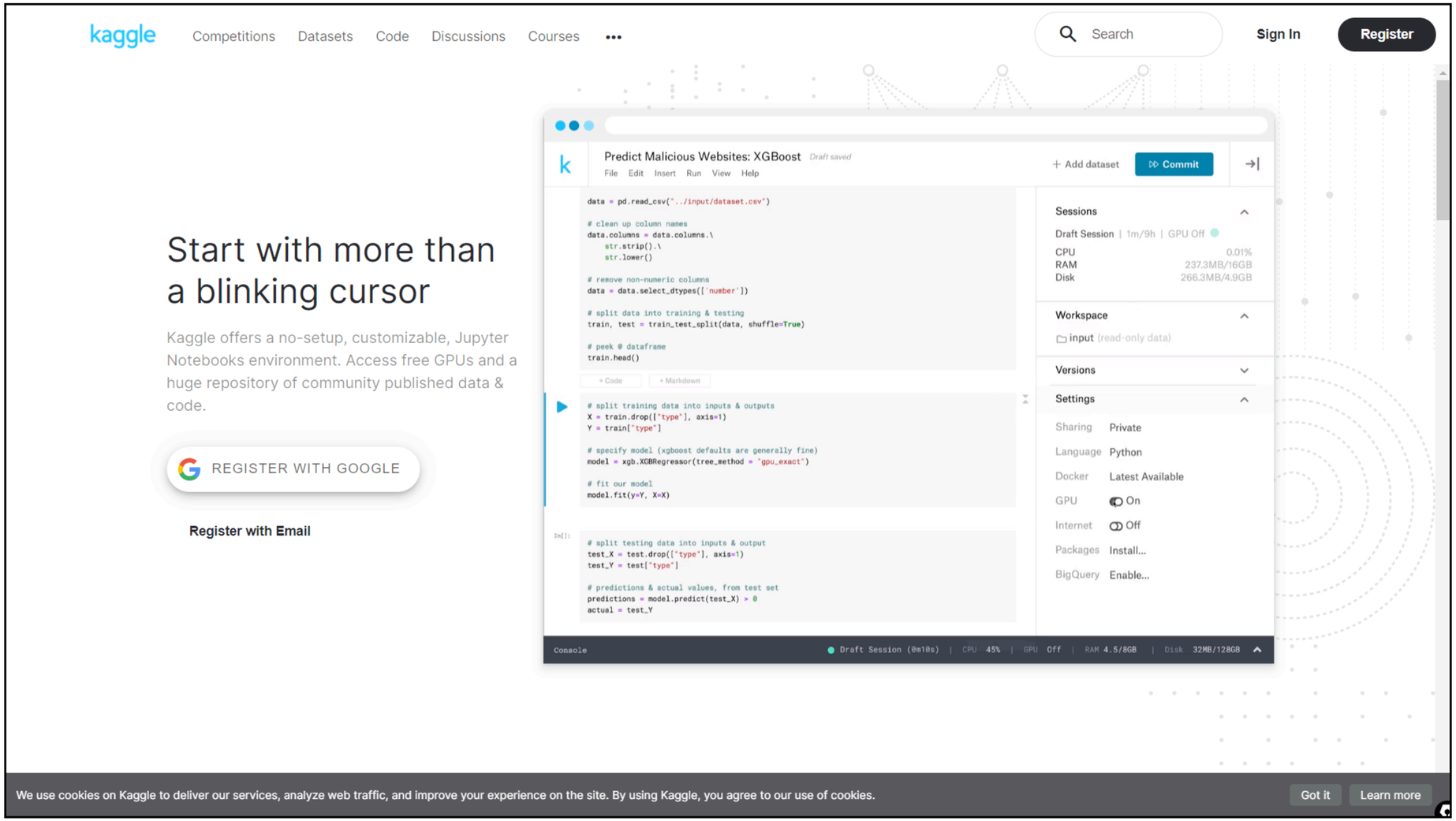
France
Great Britain
Sales Amount tooltip
Brand & Class tooltip
Satisfaction
PAGE 1 OF 10

Kaggle


kaggle
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Start with more than a blinking cursor
Kaggle offers a no-setup, customizable, Jupyter Notebooks environment. Access free GPUs and a huge repository of community published data & code.
REGISTER WITH GOOGLE
Register with Email
Predict Malicious Websites: XGBoost
Draft saved
File Edit Insert Run View Help
Add dataset
Commit
data = pd.read_csv("../input/dataset.csv")
# clean up column names
data.columns = data.columns.\
str.strip().\
str.lower()
# remove non-numeric columns
data = data.select_dtypes(['number'])
# split data into training & testing
train, test = train_test_split(data, shuffle=True)
# peek @ dataframe
train.head()
+ Code
+ Markdown
# split training data into inputs & outputs
X = train.drop(["type"], axis=1)
Y = train["type"]
# specify model (xgboost defaults are generally fine)
model = xgb.XGBRegressor(tree_method = "gpu_exact")
# fit our model
model.fit(y=Y, X=X)
In[]:
# split testing data into inputs & output
test_X = test.drop(["type"], axis=1)
test_Y = test["type"]
# predictions & actual values, from test set
predictions = model.predict(test_X) > 0
actual = test_Y
Sessions
Draft Session | 1m/9h | GPU Off
CPU 0.01%
RAM 237.3MB/16GB
Disk 266.3MB/4.9GB
Workspace
input (read-only data)
Versions
Settings
Sharing Private
Language Python
Docker Latest Available
GPU On
Internet Off
Packages Install...
BigQuery Enable...
Console
Draft Session (0m10s) | CPU 45% | GPU Off | RAM 4.5/8GB | Disk 32MB/128GB
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