Data Collection and Preprocessing Phase

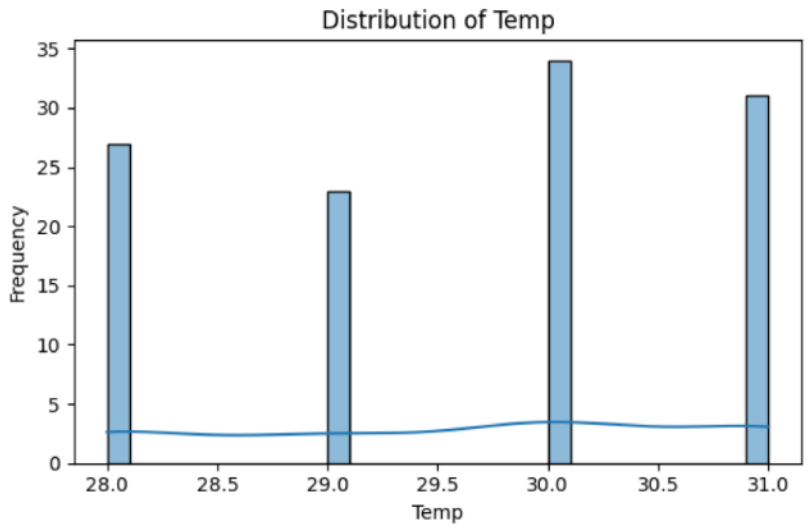
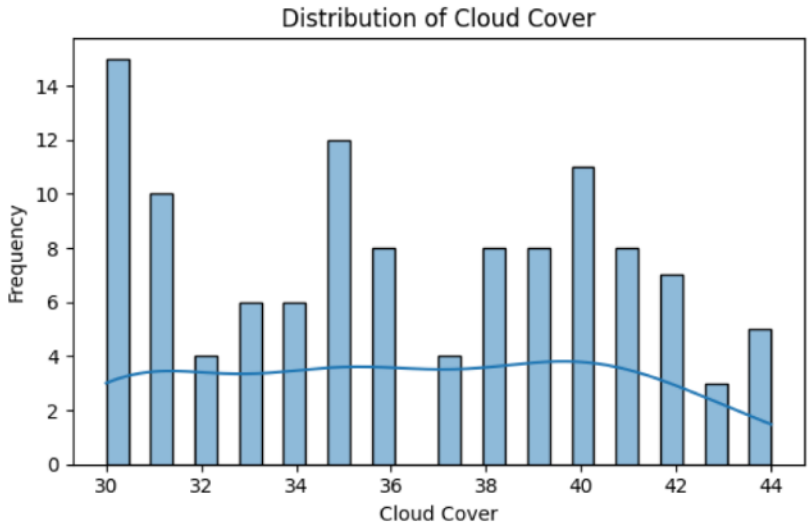
Date	13 June 2025
Team ID	SWTID1749618778
Project Title	Rising Waters: A Machine Learning Approach To Flood Prediction
Maximum Marks	6 Marks

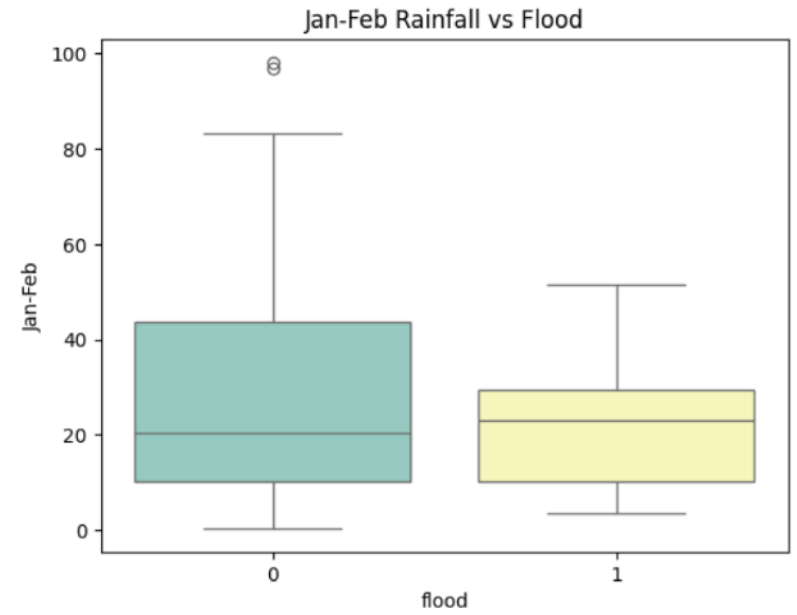
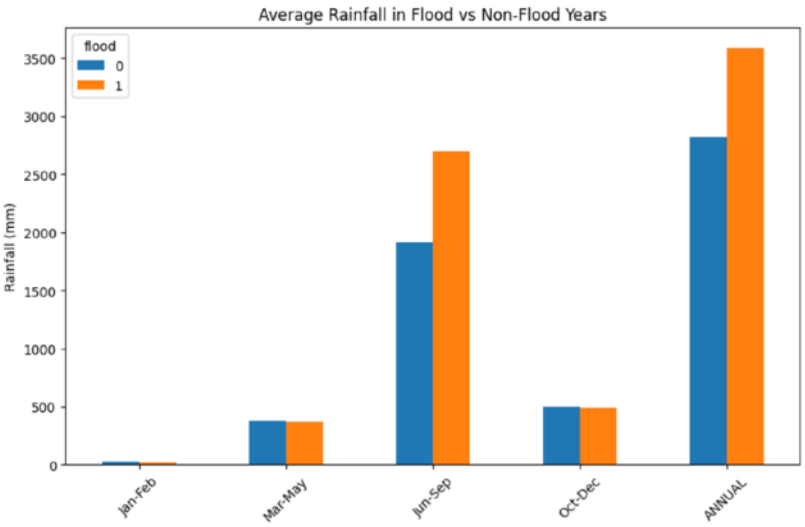
Data Exploration and Preprocessing Template

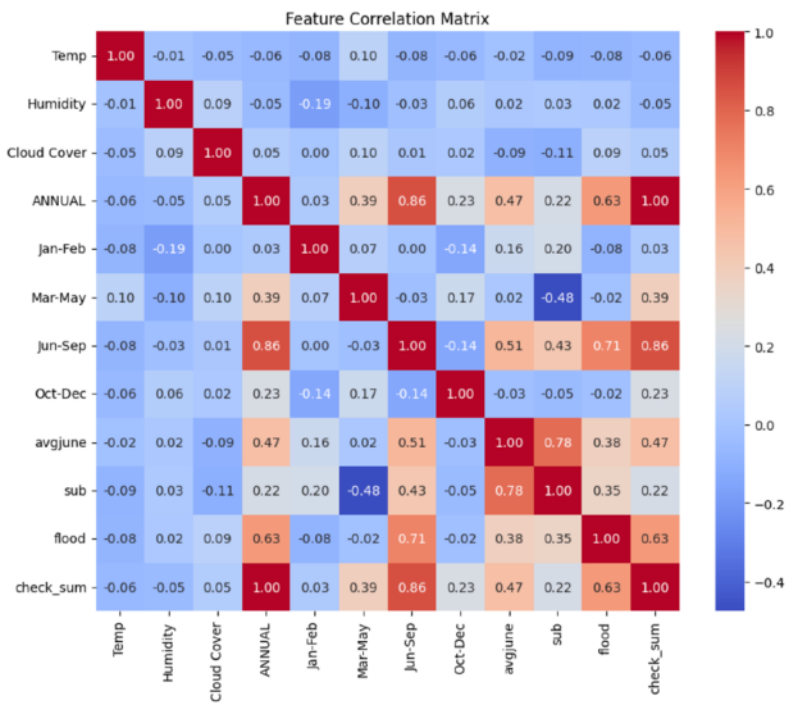
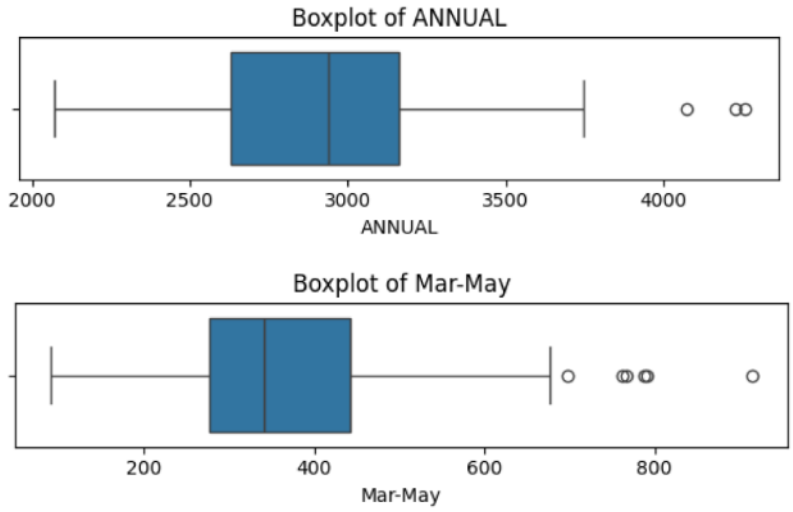
Identifies data sources, assesses quality issues like missing values and duplicates, and implements resolution plans to ensure accurate and reliable analysis.

Section	Description
Data Overview	Dimension: 115 rows x 11 columns Descriptive statistics: 

	Temp	Humidity	Cloud Cover	ANNUAL	Jan-Feb	Mar-May	Jun-Sep	Oct-Dec	avgjune	
count	115.000000	115.000000	115.000000	115.000000	115.000000	115.000000	115.000000	115.000000	115.000000	115.00
mean	29.600000	73.852174	36.286957	2925.487826	27.739130	377.253913	2022.840870	497.636522	218.100870	439.8
std	1.122341	2.947623	4.330158	422.112193	22.361032	151.091850	386.254397	129.860643	62.547597	210.4
min	28.000000	70.000000	30.000000	2068.800000	0.300000	89.900000	1104.300000	166.600000	65.600000	34.20
25%	29.000000	71.000000	32.500000	2627.900000	10.250000	276.750000	1768.850000	407.450000	179.666667	295.00
50%	30.000000	74.000000	36.000000	2937.500000	20.500000	342.000000	1948.700000	501.500000	211.033333	430.60
75%	31.000000	76.000000	40.000000	3164.100000	41.600000	442.300000	2242.900000	584.550000	263.833333	577.65
max	31.000000	79.000000	44.000000	4257.800000	98.100000	915.200000	3451.300000	823.300000	366.066667	982.70

Univariate Analysis	 

Bivariate Analysis	 

Multivariate Analysis	
Outliers and Anomalies	
Data Preprocessing Code Screenshots	

<table>
<tr><td>Loading Data</td><td>

```
df = pd.read_excel('../data/flood_dataset_raw.xlsx')
```

```
df.head()
```

	Temp	Humidity	Cloud Cover	ANNUAL	Jan-Feb	Mar-May	Jun-Sep	Oct-Dec	avgjune	sub	flood
0	29	70	30	3248.6	73.4	386.2	2122.8	666.1	274.866667	649.9	0
1	28	75	40	3326.6	9.3	275.7	2403.4	638.2	130.300000	256.4	1
2	28	75	42	3271.2	21.7	336.3	2343.0	570.1	186.200000	308.9	0
3	29	71	44	3129.7	26.7	339.4	2398.2	365.3	366.066667	862.5	0
4	31	74	40	2741.6	23.4	378.5	1881.5	458.1	283.400000	586.9	0

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<tr><td>Handling Missing Data</td><td>

```
df = pd.read_excel('../data/flood_dataset_raw.xlsx')
df.isnull().any()
```

```
Temp           False
Humidity       False
Cloud Cover    False
ANNUAL         False
Jan-Feb        False
Mar-May        False
Jun-Sep        False
Oct-Dec        False
avgjune        False
sub            False
flood          False
dtype: bool
```

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<tr><td>Data Transformation</td><td>

```
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=42)

scaler = StandardScaler()
X_train_scaled = scaler.fit_transform(X_train)
X_test_scaled = scaler.transform(X_test)
```

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<tr><td>Feature Engineering</td><td>Attached the codes in final submission.</td></tr>
<tr><td>Save Processed Data</td><td>-</td></tr>
</table>