# **CRYPTO TREE DECISION MODEL**

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# **WITHOUT FEATURE SELECTION**

## **PARTE 1:**

INDICATORI SELEZIONATI:

|  |  |  |  |
| --- | --- | --- | --- |
| RSI | MFI | CMF | Rapporto |

### **GINI**

ACCURACY: 72.12175301799051

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Precision** | **Recall** | **F1-Score** |
| **Hold** | 0,73 | 0,71 | 0,72 |
| **Not Hold** | 0,72 | 0,73 | 0,72 |

### **ENTROPY**

ACCURACY: 68.44849452769036

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Precision** | **Recall** | **F1-Score** |
| **Hold** | 0,71 | 0,62 | 0,66 |
| **Not Hold** | 0,66 | 0,75 | 0,70 |

### **MSE**

coefficient of determination R^2 of the prediction: 0.7116600477338282

Mean squared error: 0.14

Test Variance score: 0.44

## **PARTE 2:**

### **GINI**

ACCURACY: 98.37000814995925

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Precision** | **Recall** | **F1-Score** |
| **Hold** | 0,99 | 0,98 | 0,98 |
| **Not Hold** | 0,98 | 0,99 | 0,98 |

### **ENTROPY**

ACCURACY: 98.61450692746536

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Precision** | **Recall** | **F1-Score** |
| **Hold** | 0,99 | 0,99 | 0,99 |
| **Not Hold** | 0,98 | 0,99 | 0,99 |

### **MSE**

coefficient of determination R^2 of the prediction: 0.9865534360969379

Mean squared error: 0.03

Test Variance score: 0.89

# **WITH FEATURE SELECTION**

**START INDICTORS** 🡪 ['RSI', 'MFI', 'MACD\_diff', 'CMF', 'SMA', 'BB', 'Rapporto']

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **RSI** | **MFI** | **MACD** | **CMF** | **SMA** | **BB** | **Rapporto** |
| 1 | 2.487e+00 | 1.735e+02 | 7.083e-02 | 4.476e+00 | 6.094e-02 | 6.525e-01 | 8.511e+02 |
| 2 | False 5 | False 4 | False 3 | False 2 | True 1 | True 1 | True 1 |
| 3 | 0.415 | 0.27 | 0.066 | 0.167 | 0.018 | 0.047 | 0.017 |

# **1. UNIVARIATE SELECTION**

INDICATORI SELEZIONATI:

|  |  |  |  |
| --- | --- | --- | --- |
| RSI | MFI | CMF | Rapporto |

Nome dataset: 01-01-2019\_30-05-2019\_fs1

## **Parte 1**

Hold 2043

No\_Hold 2043

### **GINI**

ACCURACY: 72.38479966179717

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Precision** | **Recall** | **F1-Score** |
| **Hold** | 0,73 | 0,71 | 0,72 |
| **Not Hold** | 0,72 | 0,74 | 0,73 |

### **ENTROPY**

ACCURACY: 67.84254779463573

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Precision** | **Recall** | **F1-Score** |
| **Hold** | 0,67 | 0,69 | 0,68 |
| **Not Hold** | 0,69 | 0,66 | 0,67 |

### **MSE**

coefficient of determination R^2 of the prediction: 0.7501938936033343

Mean squared error: 0.14

Test Variance score: 0.45

## **Parte 2**

Hold 2043

No\_Hold 2043

### **GINI**

ACCURACY: 97.31051344743277

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Precision** | **Recall** | **F1-Score** |
| **Hold** | 0,97 | 0,97 | 0,97 |
| **Not Hold** | 0,97 | 0,97 | 0,97 |

### **ENTROPY**

ACCURACY: 97.88101059494703

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Precision** | **Recall** | **F1-Score** |
| **Hold** | 0,98 | 0,98 | 0,98 |
| **Not Hold** | 0,98 | 0,98 | 0,98 |

### **MSE**

coefficient of determination R^2 of the prediction: 0.9946400178549318

Mean squared error: 0.04

Test Variance score: 0.84

# **2. RECURSIVE FEATURE ELIMINATION**

INDICATORI SELEZIONATI:

|  |  |  |
| --- | --- | --- |
| SMA | BB | Rapporto |

Nome dataset: 01-01-2019\_30-05-2019\_fs2

## **Parte 1**

### **GINI**

ACCURACY: 59.08685236507117

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Precision** | **Recall** | **F1-Score** |
| **Hold** | 0,55 | 0,93 | 0,69 |
| **Not Hold** | 0,78 | 0,26 | 0,39 |

### **ENTROPY**

ACCURACY: 59.08685236507117

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Precision** | **Recall** | **F1-Score** |
| **Hold** | 0,55 | 0,93 | 0,69 |
| **Not Hold** | 0,78 | 0,26 | 0,39 |

### **MSE**

coefficient of determination R^2 of the prediction: 0.06499859594005886

Mean squared error: 0.23

Test Variance score: 0.07

## **Parte 2**

### **GINI**

ACCURACY: 67.56316218418907

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Precision** | **Recall** | **F1-Score** |
| **Hold** | 0,64 | 0,82 | 0,72 |
| **Not Hold** | 0,73 | 0,53 | 0,61 |

### **ENTROPY**

ACCURACY: 67.56316218418907

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Precision** | **Recall** | **F1-Score** |
| **Hold** | 0,64 | 0,82 | 0,72 |
| **Not Hold** | 0,73 | 0,53 | 0,61 |

### **MSE**

coefficient of determination R^2 of the prediction: 0.280123975749507

Mean squared error: 0.18

Test Variance score: 0.28

# **3. FEATURE IMPORTANCE**

INDICATORI SELEZIONATI:

|  |  |  |
| --- | --- | --- |
| RSI | MFI | CMF |

Nome dataset: 01-01-2019\_30-05-2019\_fs3

## **Parte 1**

### **GINI**

ACCURACY: 71.93855981962516

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Precision** | **Recall** | **F1-Score** |
| **Hold** | 0,72 | 0,70 | 0,71 |
| **Not Hold** | 0,71 | 0,74 | 0,73 |

### **ENTROPY**

ACCURACY: 67.7908779181737

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Precision** | **Recall** | **F1-Score** |
| **Hold** | 0,67 | 0,70 | 0,68 |
| **Not Hold** | 0,69 | 0,66 | 0,67 |

### **MSE**

coefficient of determination R^2 of the prediction: 0.6938782508656625

Mean squared error: 0.14

Test Variance score: 0.44

## **Parte 2**

### **GINI**

ACCURACY: 97.3920130399348

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Precision** | **Recall** | **F1-Score** |
| **Hold** | 0,97 | 0,97 | 0,97 |
| **Not Hold** | 0,97 | 0,97 | 0,97 |

### **ENTROPY**

ACCURACY: 97.88101059494703

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Precision** | **Recall** | **F1-Score** |
| **Hold** | 0,98 | 0,98 | 0,98 |
| **Not Hold** | 0,98 | 0,98 | 0,98 |

### **MSE**

coefficient of determination R^2 of the prediction: 0.9935913256961144

Mean squared error: 0.04

Test Variance score: 0.83