

# maXbox6

all about code blocks

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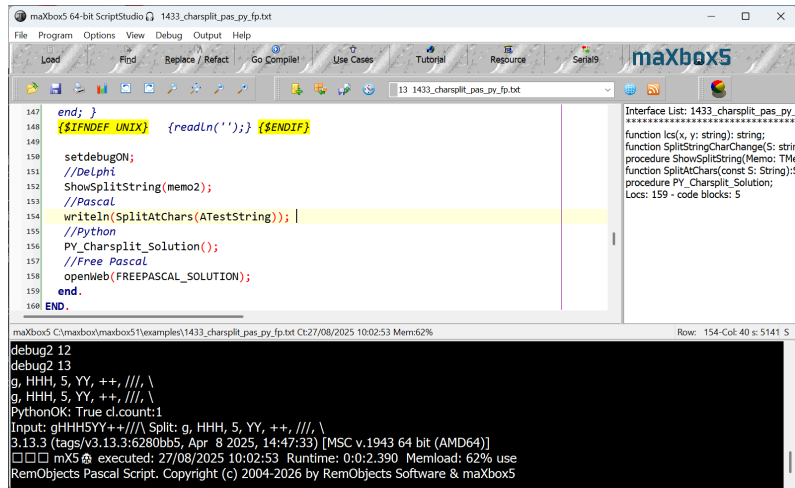
about



# maXbox

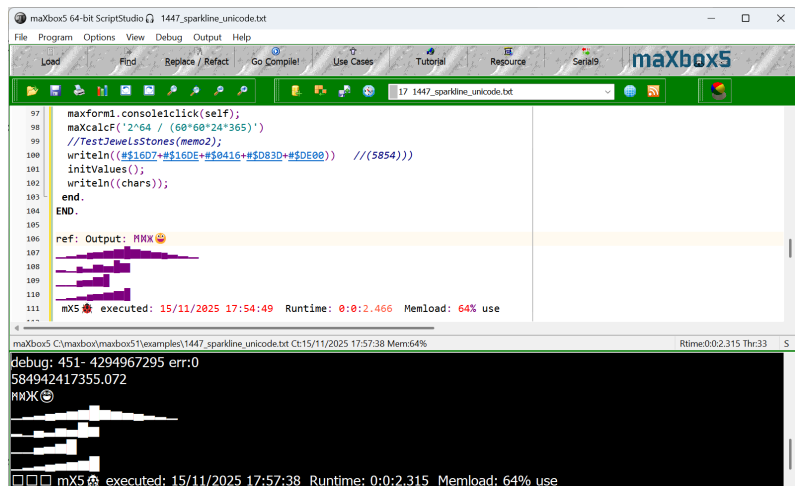
The Art of Coding: maXbox is a script tool engine, compiler and source lib all in one exe to design and code your scripts in a shellbook! Pure Code for Object Scripting. Principle is simplicity and reduce to the max.

The App is "out of the box" (self containment) and needs no installation nor registration. It has a independent system architecture (ISA).

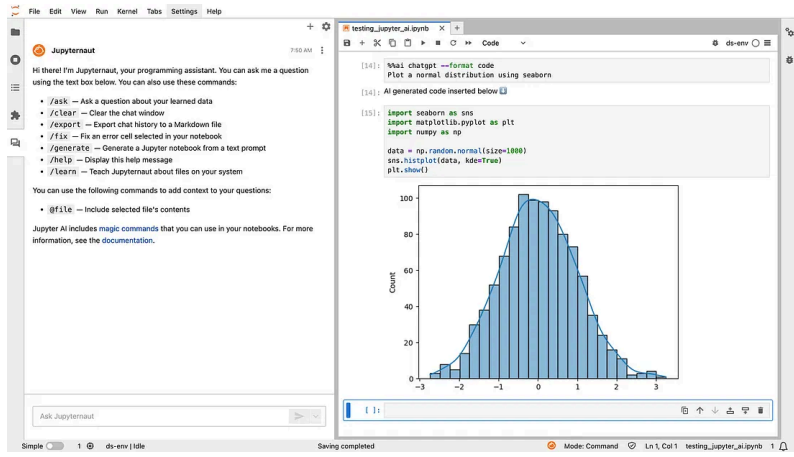


maXbox5

- Now 37721! functions /proc 4343 objects (3860 units)/class as a precompiled Virtual Machine with bytecode interpreter supports most of units: VCL,FCL,LCL,JCL,Systools,Indy,Inno,Synapse,TurboPower,AsyncPro, TeeChart,DMath,mX4,Jedi,KLib,CLX,ADO4,Orpheus,PCRE,Fundamentals,RSS+,Wininet2,P4D,CAI RegEx,LockBox,Kronos,ST,WMI,SimpleTCP,TFannNetwork,Cindy,Mathlab, Mapbox,...
- V 4.7.6.50 1415 examples & 145 tutorials online.
- V 5.1.6.98 as first beta release of 64bit-box unicode: <https://archive.org/details/maxbox5>
- V 5.2.9.198 beta5 release of 64bit-box unicode: <https://archive.org/details/maxbox5>
- Source compiled: 3'442'634 lines V 5.2.9.198– 3860 Units V5.2.9.198



maXbox5 64-bit Unicode Python4Delphi

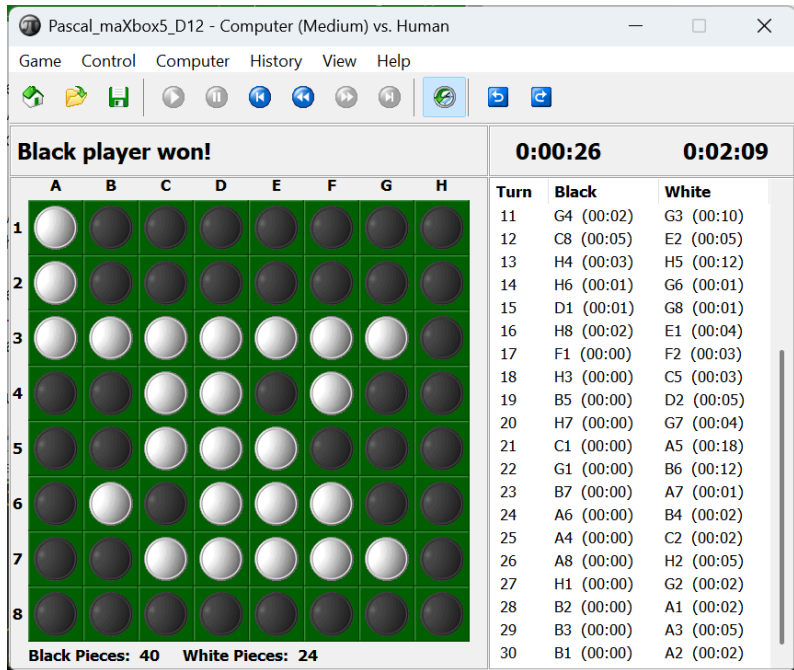


Jupyter AI and %%ai magic command in Jupyter Lab

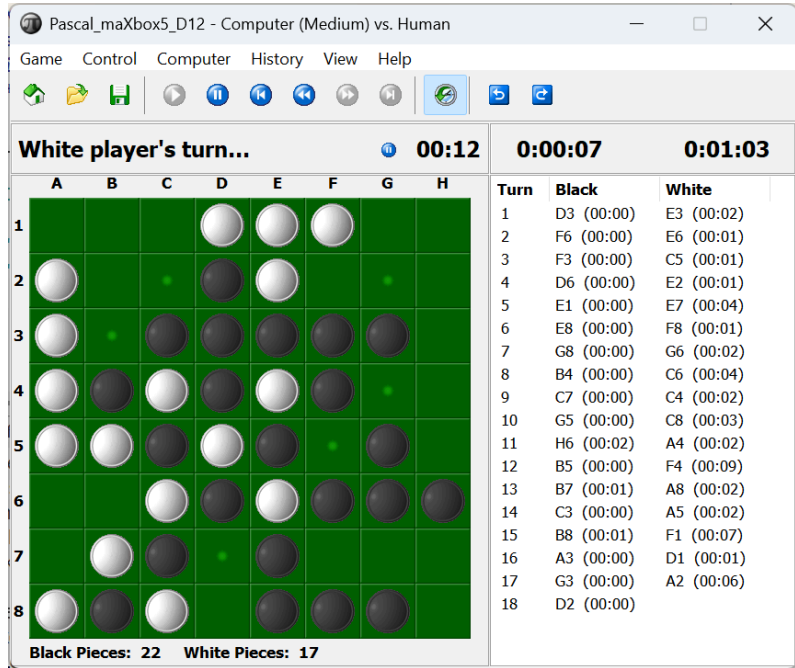
As a Jupyter Notebook:

[maxbox5/machinelearningsteps.ipynb](https://maxbox5/machinelearningsteps.ipynb) at [main · maxkleiner/maxbox5](https://github.com/maxkleiner/maxbox5)

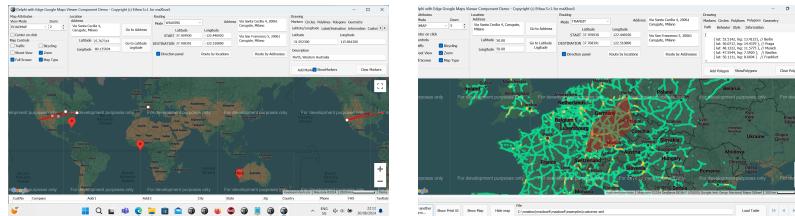
### Games on maXbox5



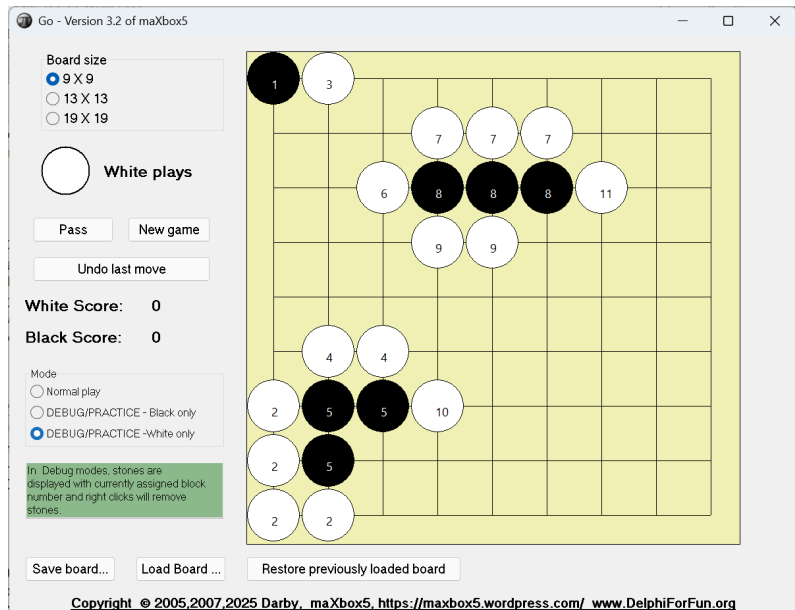
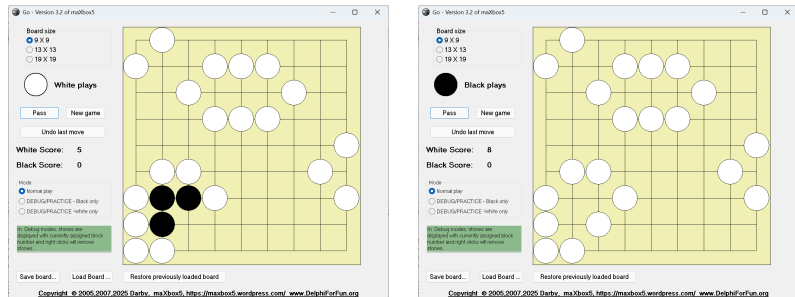
./Options/Add Ons/Reversi



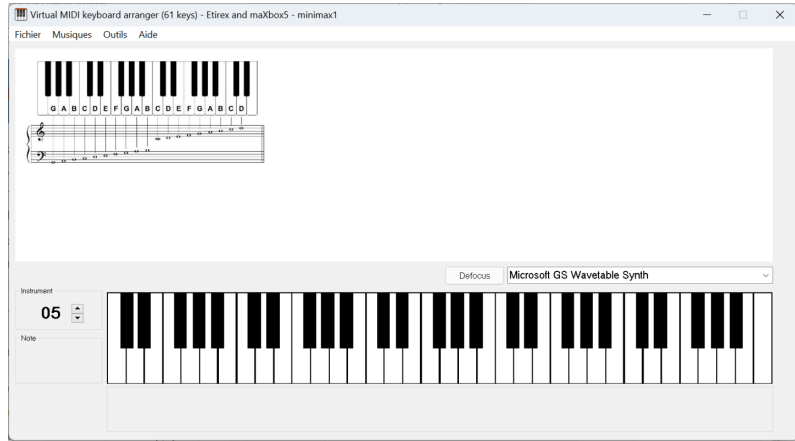
Othello runs with sound!



Geo Map View3



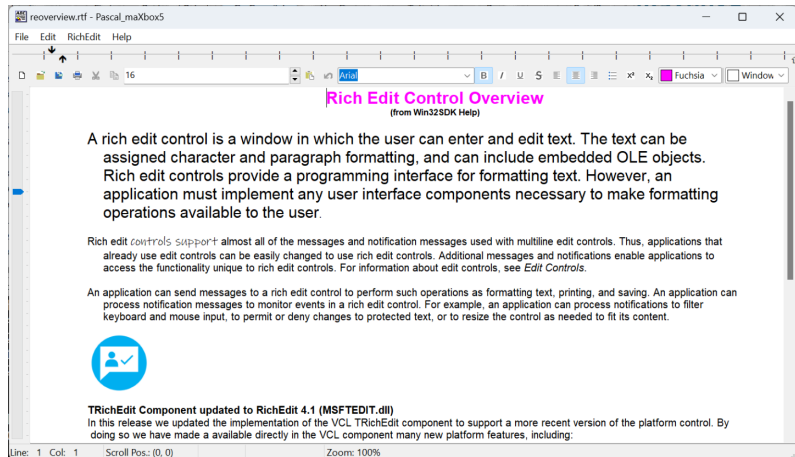
Go Game Explained



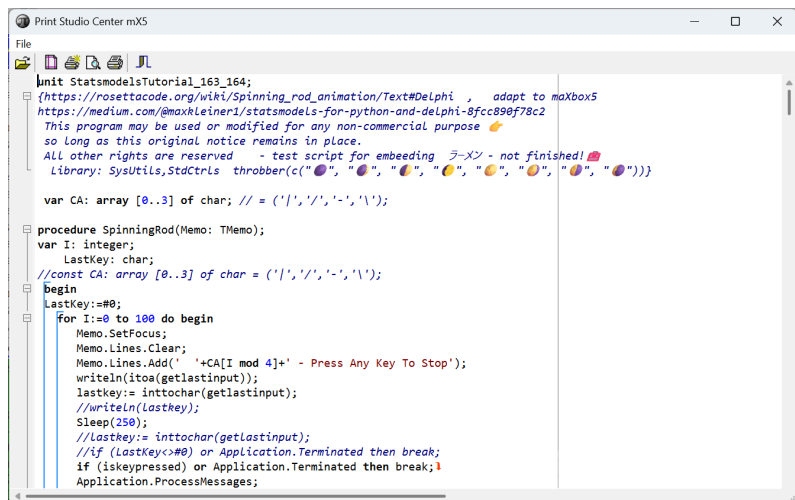
Midi Mapper 5

For musicians and producers, the right MIDI controller can elevate your creativity and streamline your workflow.

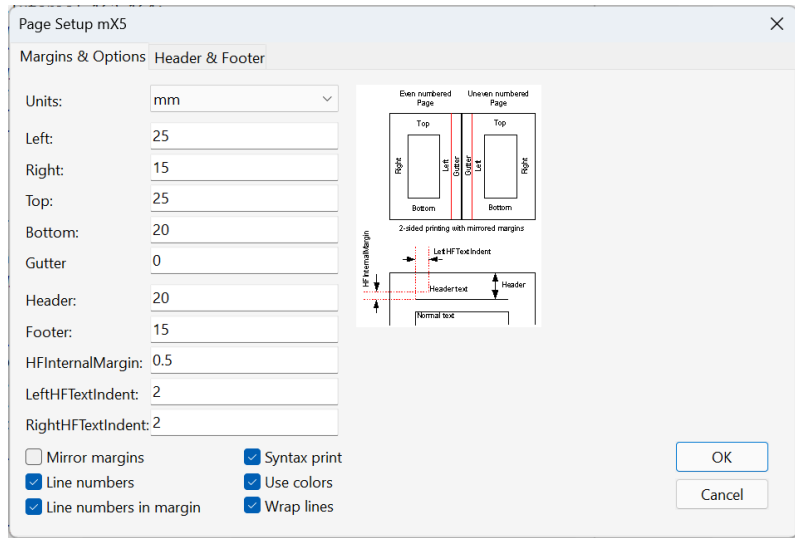
Represents a RichEdit control which is a container for the rich-text document providing all the necessary functionality.



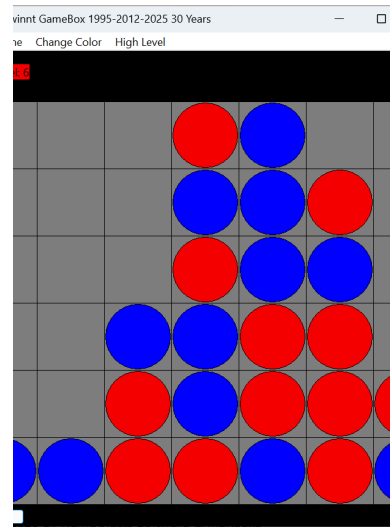
RichEdit Controls



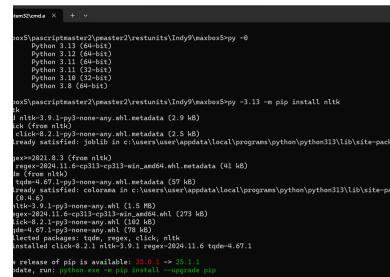
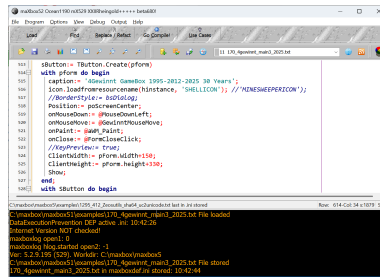
Print Studio 5



Print Studio 5 – Page Setup



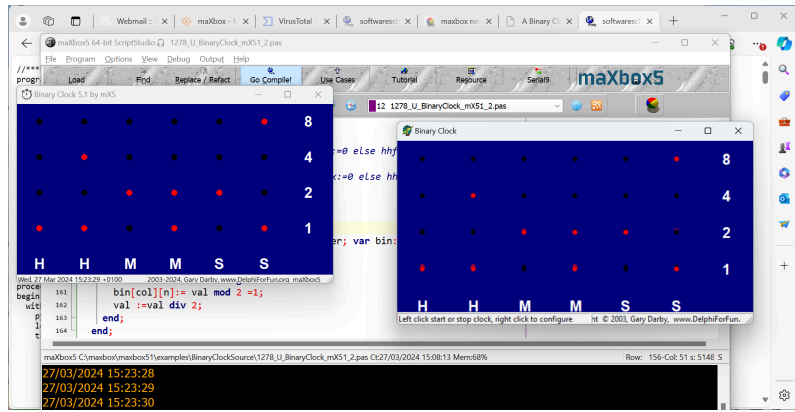
Two classical games minesweeper & 4 gewinnt



maXbox Editor & Python4Delphi Environment

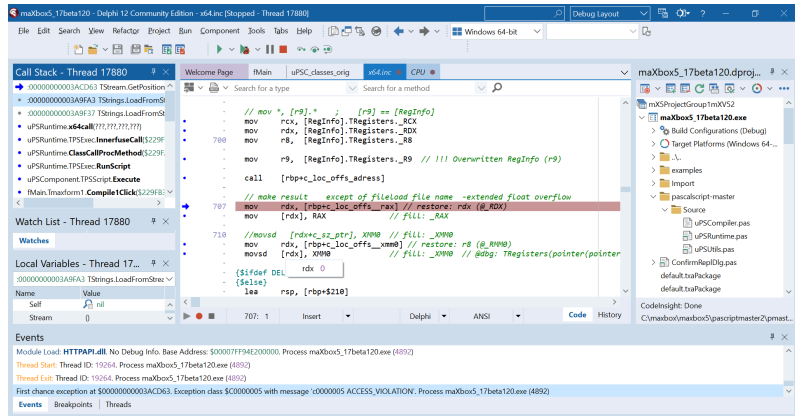
### maXbox Research

from time to time we are searching for a new time in between



Time comparison

OpenGTS® (“Open GPS Tracking System”) is the first available open source project designed specifically to provide web-based GPS tracking services for a “fleet” of vehicles.



debug on the run

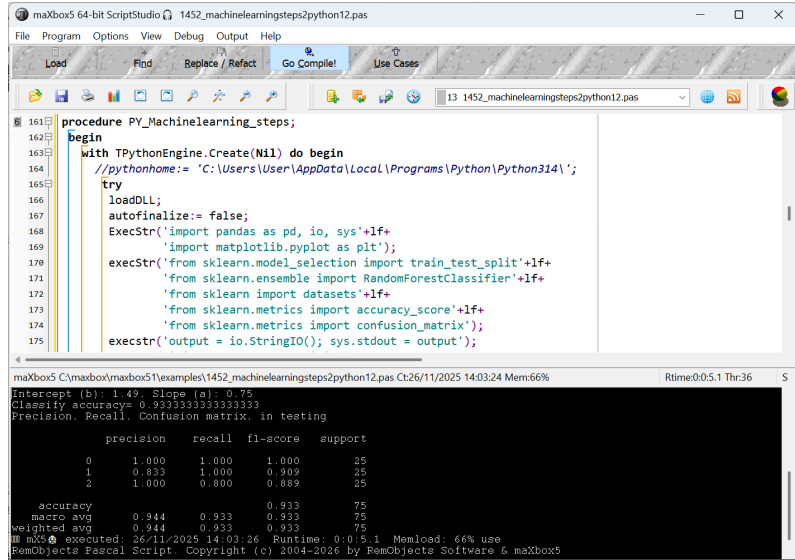
OpenGTS not only supports the data collection and storage of GPS Tracking and Telemetry data from remote devices, but also includes a rich set of features:

### Object Detection by maXbox

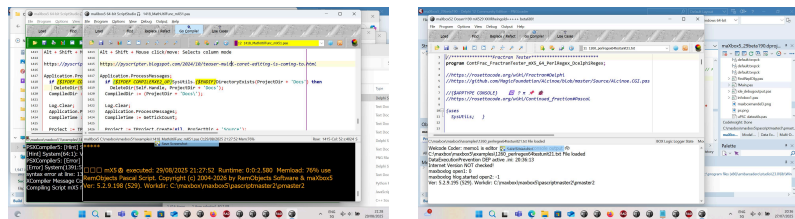


Keras integration with pretrained yolo-model

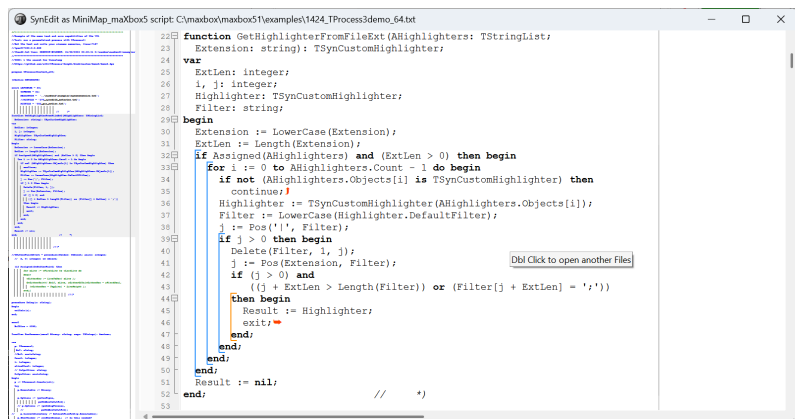
The provided Delphi code snippet uses the Python4Delphi library, specifically the TPythonEngine component, to embed Python code execution into a Delphi application. It creates an instance of TPythonEngine and uses it to run a sequence of Python commands that implement a machine learning workflow with the iris dataset using popular Python libraries like pandas, matplotlib, scikit-learn, and seaborn. With maXbox you can think out of the box.



[Download 1452\\_machinelearningsteps2python12.pas \(maXbox5\)](#)



mX52 Development



SynEdit EUpdates

### All maXbox Tutorials – Precompiled Object Based Scripting Tool (POBST)

- [maXbox Introduction 2014](#)
- [Tutorial 00 Blix the Programmer](#)
- [maXbox Delphi CodeSnippets DB 2016](#)
- [Tutor 01 Procedural-Coding](#)
- [Tutor 02 OO-Coding](#)

- [Tutor 03 Modular Coding](#)
- [Tutor 04 UML Coding](#)
- [Tutor 05 Internet Coding](#)
- [Tutor 06 Network Coding](#)
- [Tutor 07 Game Coding](#)
- [Tutor 08 Operating System Coding](#)
- [Tutor 09 Database Coding](#)
- [Tutor 10 Statistic Coding](#)
- [Tutor 10 Probability Coding](#)
- [Tutor 11 Forms Coding](#)
- [Tutor 12 SQL Coding](#)
- [Tutor 13 Crypto Coding](#)
- [Tutor 14 Parallel Coding](#)
- [Tutor 15 Serial Coding](#)
- [Tutor 16 Event Driven Coding](#)
- [Tutor 17 Web Server Coding](#)
- [Tutor 18 Arduino Coding and Web of Things](#)
- [Tutor 18\\_3 Arduino RGB LED Breadboard and Source LED Zip](#)
- [Tutor 18\\_5 Arduino RGB LED WebSocket](#)
- [Tutor 19 WinCOM /Arduino Coding and Source LED COM](#)
- [Tutor 20 Regular Expressions](#)
- [Tutor 20\\_1 RegEx PI Report](#)
- [Tutor 20\\_2 BASTA2015 RegExSlides](#)
- [Tutor 21 Android SONAR: 2015 & Basta LED Things & Code ADK SeekBar](#)
- [Tutor 22 Services Coding](#)
- [Tutor 23 Real Time Code](#)
- [Tutor 24 Clean Code](#)
- [Tutor 25 Configuration](#)
- [Tutor 26 TCP Sockets](#)
- [Tutor 27 XML Coding](#)
- [Tutor 28 DLL Coding](#)
- [Tutor 29 UML Modeling](#)
- [Tutor 30 WOT Web of Things & Basta 2014 Arduino & maXbox](#)
- [Tutor 31 Closures](#)
- [Tutor 32 SQL Server Firebird](#)
- [Tutor 33 Oscilloscope](#)
- [Tutor 34 GPS Codes](#)
- [Tutor 35 Web Box](#)
- [Tutor 36 Unit Testing](#)
- [Tutor 37 API Coding](#)
- [Tutor 38 3D Coding](#)
- [Tutor 39 Maps Coding](#)
- [Tutor 39 Maps2 Coding](#)
- [Tutor 39\\_2 mapbox Coding](#)
- [Tutor 40 REST API Coding](#)
- [Tutor 40\\_1 OpenWeatherMap Code German](#)
- [Tutor 41 Big Numbers](#)
- [Tutor 41 Big Numbers Short](#)
- [Tutor 41 German Big Numbers](#)
- [Tutor 42 Multi Processing: available](#)
- [Tutor 43 Code Metrics June2016](#)
- [Tutor 44 IDE Extensions](#)
- [Tutor 45 Robotics July2016](#)
- [Tutor 46 WineHQ Dez2016](#)
- [Tutor 47 RSA Crypto Jan2017](#)
- [Tutor 48 Microservice Jan2017](#)

- [Tutor 49 Refactoring March2017](#)
- [Tutor 50 Big Numbers II April2017](#)
- [Tutor 51 Big5 Use Cases April2017](#)
- [Tutor 52 Work with WMI Mai 2017](#)
- [Tutor 52 2.Part Mai 2017](#)
- [Tutor 53 Real Time UML August 2017](#)
- [Tutor 54 MicroserviceII Sept 2017](#)
- [Tutor 55 ASCII Talk Dez 2017](#)
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- [Tutor 57 Neural Network II](#)
- [Tutor 58 Data Science](#)
- [Tutor 59 Big Data Feb 2018](#)
- [Tutor 60 Machine Learning March 2018](#)
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- [Tutor 60.2 ML II](#)
- [Tutor 63 Machine Games](#)
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- [Tutor 66 Machine Learning IV](#)
- [Tutor 67 Machine Learning V](#)
- [Tutor 68 Machine Learning VI](#)
- [Tutor 69 Machine Learning VII](#)
- [Tutor 70 No GUI Shell](#)
- [Tutor 71 CGI Scripts](#)
- [Tutor 72 Multilanguage](#)
- [Tutor 73 EKON 24 Edition](#)
- [Tutor 74 BASTA 2020 Vision](#)
- [Tutor 75 Object Detection ML VIII](#)
- [Tutor 76 ML w. CAI ML IX](#)
- [Tutor 77 Unified Machine Learning ML X](#)
- [Tutor 78 Portable Pixmap](#)
- [Tutor 79 Assertions](#)
- [Tutor 80 Tips and Tricks](#)
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- [Tutor 82 JSON Code.](#)
- [Tutor 82\\_2 Sentiment API](#)
- [Tutor 83 Classification ML XI](#)
- [Tutor 84 Baseline ML XII](#)
- [Tutor 85 JSON4Delphi](#)
- [Tutor 86 Python4Delphi](#)
- [Tutor 86\\_1 Python4Delphi](#)
- [Tutor 86\\_2 Python4Delphi](#)
- [Tutor 86\\_3 Python4maXbox](#)
- [Tutor 86\\_4 Python4maXbox II](#)
- [Tutor 87 CAI Lazarus!](#)
- [Tutor 88 Performance Tuning](#)
- [Tutor 89 CAI mX4](#)
- [Tutor 89\\_1 CAI mX4](#)
- [Tutor 89\\_2 CAI Learner](#)
- [Tutor 90 Python Cheat Sheet Learner](#)
- [Tutor 91 Faker SynDat Generator](#)
- [Tutor 91 Faker SynDat II](#)
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- [Tutor 92\\_1 VCL4Python](#)
- [Tutor 93 Geocoding](#)
- [Tutor 94 Post Service API](#)

- [Tutor 95 Translator API](#)
- [Tutor 96 CNN Pipeline](#)
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- [Tutor 99 Data Science API](#)
- [Tutor 100 Data Science Story](#)
- [Tutor 101 Data Science Story](#)
- [Tutor 102 Compiler versus Interpreter](#)
- [Tutor 103 Image2Text API](#)
- [Tutor 104 restcountries API](#)
- [Tutor 105 REST Client Classify, March 2023](#)
- [Tutor 106 Air Distance and Bearing, March 2023](#)
- [Tutor 107 pas2js, March 2023](#)
- [Tutor 108 Hacking your Marklin, March 2023](#)
- [Tutor 109 Google Translate API, April 2023](#)
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- [Tutor 110 Code Overview Samples, April 2023](#)
- [Tutor 111 Pas2JS, August 2023](#)
- [Tutor 112 Machine Learning Package, August 2023](#)
- [Tutor 113 Migrate to 64-bit Report, October 2023](#)
- [Tutor 114 Cannonball Simulation, September 2023](#)
- [Tutor 115 64-bit 2 Points in Space, November 2023](#)
- [Tutor 116 64-bit 2 Debugging, December 2023](#)
- [The-mystery-of-IStream, December 2023](#)
- [Tutor 117 Mystery of IStream, December 2023](#)
- [Tutor 118 Code Signing, January 2024](#)
- [Tutor 119 Multicode, February 2024](#)
- [Tutor 119 Multicode\\_2, February 2024](#)
- [Tutor 120 Unicode Signs, March 2024](#)
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- [Tutor 122 Geocoding V, March 2024](#)
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- [Tutor 124 Image Detect API 1 Medium, April 2024](#)
- [Tutor 124 Object Detection API, April 2024](#)
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- [Tutor 126 4 Machine Learning Object Detection Solutions, July 2024](#)
- [Tutor 127 Geo Maps Directions Station2Station, October 2024](#)
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- [Tutor 134 Beyond the Obstacle, January 2025](#)
- [Tutor 135 The Top 7 Algorithms, February 2025](#)
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- [Tutor 146 Debugging, June 2025](#)
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- [Tutor 152 MP3 Sound Engine, July 2025](#)
- [Tutor 153 Pas2Doc Processor, August 2025](#)
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- [Tutor 157 Statistic Packages EKON 29, October 2025](#)
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- [Tutor 161 Highway to Shell, November 2025](#)
- [Tutor 162 Train a Classifier 2, November 2025](#)
- [Tutor 163 Statsmodels for Python and Delphi, November 2025](#)
- [Tutor 164 Machinelearningsteps, November 2025](#)
- [Tutor 165 New Addons and Plugins, December 2025](#)
- [maXbox5 Top 5 Algorithms, February 2025](#)
- [maXbox5 Tester- the soul of code, July 2024](#)
- [maXbox5 Hybrid Analysis, July 2024](#)

```

458 srlist:= FindAllFiles(pathpdfmentor, '*'+Auftrag+'_??'.pdf', true);
459
460 for it:= 0 to srlist.count-1 do begin
461   writeln((srlist.strings[it]));
462   tmpfilename := extractfilename(srlist.strings[it]);
463   IF AnsiPos('_LS', tmpfilename) > 0 THEN BEGIN
464     tmpfilename := '_LS_' + tmpfilename2;
465   end else begin
466     if AnsiPos('_RG', tmpfilename) > 0 THEN BEGIN
467       tmpfilename := '_RG_' + tmpfilename2;
468     END ELSE BEGIN
469       tmpfilename := '_ES_' + tmpfilename2;
470     END;
471 end;
  
```

maXbox5 C:\maxbox\maxbox5\mentor2024\maxbox4\advance\maxbox4\WER\WER\_0a\_1\_ScriptMentorToPostLogistics.txt Ct:24/11/2025 20:53:19 Men Row: 586-Col: 35 s:2262 S  
 maXbox5 WER\_0a\_1\_ScriptMentorToPostLogistics.txt Compiled done: 24/11/2025 20:53:19  
 -----  
 pathandfilenormallog:  
 24/11/2025 20:53:19 -----  
 pathandfilenormallog:  
 24/11/2025 20:53:19 WER Export started  
 Exception: Invalid class string, ProgID: "WinSCP.SessionOptions" at 906.117  
 RemObjects Pascal Script. Copyright (c) 2004-2026 by RemObjects Software & maXbox5

Postlogistics WER

Download maXbox5 Release on [Github](#) also Assets and Project Sources.

| File Overview       |  |                    |  |
|---------------------|--|--------------------|--|
| Category            | E  | Entropy            | 6.4386242193875445                                 |
| File Type           | Executable File  | Scanned            | 09/03/2025 16:09 PM GMT                            |
| File Extension      | exe  | Duration           | a few seconds                                      |
| TrID                | InstallShieldsetup   | MDS                | E37919391BC7E0761F5C1F46D5FF9138                   |
| LibMagic            | PE32+ executable (GUI) x86-64, for MS Windows, 11 sections | SHA-1              | 5A51DFE26C9F57E6C51F47BC9E72625A79646B51           |
| Magika              | PEBIN  | SHA-256            | 5E07C6C0537E5077007B74D12B886D4A6A6088545B2F_D886E |
| File Size           | 81.9 MB  | Company Name       | kk   |
| Uploaded            | 09/03/2025 16:09 PM GMT                                    | File Description   | maXbox5_29beta198 Code Studio                      |
| SSDEEP              | 786432:5q8FBPTQSVI/MbcdEChIWL+Fn7lwKG6eMj... 3GvXM         | File Version       | 5.2.9.198  |
| Architecture        | 64 Bits binary   | Internal Name      | maXbox5.2  |
| Is DotNet           | False  | Legal Copyright    | maXbox   |
| Is Packed           | False  | Original File Name | maXbox52.exe                                       |
| Is Digitally Signed | False  | Product Name       | maXbox5_29beta198                                  |
|                     |  | Product Version    | 5.2.9.198  |

V 5.2.9.198

|  |   |   |   |
|--|---|---|---|
| <p><b>Optimization</b></p> <p><b>Common:</b></p> <ul style="list-style-type: none"> <li>- Fake/dfs</li> <li>- DP/greedy/bf</li> <li>- Binary Search/TS</li> <li>- Branch &amp; Bound</li> <li>- RMQ/LCA</li> <li>- Line sweep</li> <li>- AlgoX</li> </ul> <p><b>Minimization</b></p> <ul style="list-style-type: none"> <li>- MCMF</li> <li>- Min cut / vertex</li> <li>- MST / Dijkstra</li> <li>- Chull / mec</li> </ul> <p><b>Maximization</b></p> <ul style="list-style-type: none"> <li>- Max flow / MCMF</li> <li>- Max Independent Set</li> <li>- Kruskal Reverse</li> <li>- LIS/GCD</li> </ul> | <p><b>DP</b></p> <p><b>General</b></p> <ul style="list-style-type: none"> <li>- State representation(s)</li> <li>- Diff sub-states calls?</li> <li>-- move to state</li> <li>- Cycles?</li> <li>-- Depth?</li> <li>-- Dijkstra / Bfs</li> <li>-- Dec(rement)-inc-dec</li> </ul> <p><b>Types</b></p> <ul style="list-style-type: none"> <li>- Restricted / Range</li> <li>- Counting</li> <li>- Tree / Partitioning</li> <li>- Extending table</li> </ul> <p><b>Concerns</b></p> <ul style="list-style-type: none"> <li>- Base case order</li> <li>- Search space?</li> <li>-- Constrained pars</li> <li>- Redundant pars</li> </ul> <p><b>States</b></p> <ul style="list-style-type: none"> <li>- Canonical states?</li> <li>- Local Minima</li> <li>- Small substates cnt?</li> <li>- Large pars</li> <li>- Reduces fast? (e.g. /)</li> </ul> <p><b>Counting Problems</b></p> <ul style="list-style-type: none"> <li>- DP</li> <li>- Combinations / Perms</li> <li>- Inclusion-exclusion</li> <li>- Graph Power</li> </ul> | <p><b>Data Structures</b></p> <ul style="list-style-type: none"> <li>- Set/Heap /DisjointSets</li> <li>- BIT</li> <li>- Segmentation Tree</li> <li>- Treab, KDT</li> <li>- LCA/RMQ</li> <li>- Hashing</li> <li>- Interval Compression</li> <li>- Quad Tree</li> </ul> <p><b>Graph Algorithms</b></p> <ul style="list-style-type: none"> <li>- MST: Kruskal / Prime</li> <li>- Dijkstra / Topological</li> <li>- Convex Hull / Floyd</li> <li>- Max Flow/Min Cut</li> <li>- Max Matching</li> <li>- Max Indep Set</li> <li>- Min path/vertex cover</li> <li>- Bellman / DConsts</li> <li>- Euler/Postman</li> </ul> <p><b>String Algorithms</b></p> <ul style="list-style-type: none"> <li>- Trie</li> <li>- Permutation Cycles</li> <li>- LIS / LCS</li> <li>- Polynomial Hashing</li> <li>- KMP / Aho Corasick</li> <li>- Suffix tree/array</li> </ul> | <p><b>Mathematics</b></p> <ul style="list-style-type: none"> <li>- GCD/LCM/Phi/Mob</li> <li>- NIM/Grundy/Chinese</li> <li>- Seive/Factorization</li> <li>- System of Linear Eqs</li> <li>- Determinant</li> <li>- Simplex/ Pick's Theo</li> <li>- Numerical Integration</li> <li>- Matrix Power</li> <li>- Closed Form</li> <li>- Pigeon Hole</li> <li>- Triangle inequality</li> <li>- Voronoi diagram</li> </ul> <p><b>Adhock Algorithms</b></p> <ul style="list-style-type: none"> <li>- Greedy</li> <li>- Line Sweep</li> <li>- Sliding Window</li> <li>- Canonical Form</li> <li>- Grid Compression</li> <li>- Constructive algos</li> <li>- Test cases driven</li> <li>- Randomization</li> <li>- Time cut-off</li> <li>- Stress Test &amp; Observe</li> </ul> <p><b>Decision Algorithms</b></p> <ul style="list-style-type: none"> <li>- 2SAT</li> <li>- Difference constraints</li> <li>- Grundy</li> <li>- Bipartite?</li> </ul> |
|--|---|---|---|

Algorithms on maXbox5

```

177 f:= sum-e-d;
178 //IF f in [LoDgt..Hidgt]then
179 IF ((f >= LoDgt) and (f <= Hidgt)) then Begin
180 g:= sum-f;
181 //IF g in [LoDgt..Hidgt]then
182 IF ((g >= LoDgt) and (g <= Hidgt)) then Begin
183 inc(cnt);
184 CheckUnique;
185 end;
186 end;
187 end;
188 end;
189 end;
190 end;
191 processmessagesOFF;
192 Solout;
193 processmessagesON; // *)
    
```

solution count for 0 to 9 = 2860  
 unique solution count for 0 to 9 = 192  
 TrueFalseTrueTrueTrueFalse  
 mX5 executed: 06/12/2025 19:18:05 Runtime: 0:0:4.10 Memload: 76% use  
 RemObjects Pascal Script. Copyright (c) 2004-2026 by RemObjects Software & maXbox5

Example 1454:

[https://sourceforge.net/projects/maxbox5/files/examples/1454\\_square4\\_1.pas/download](https://sourceforge.net/projects/maxbox5/files/examples/1454_square4_1.pas/download)

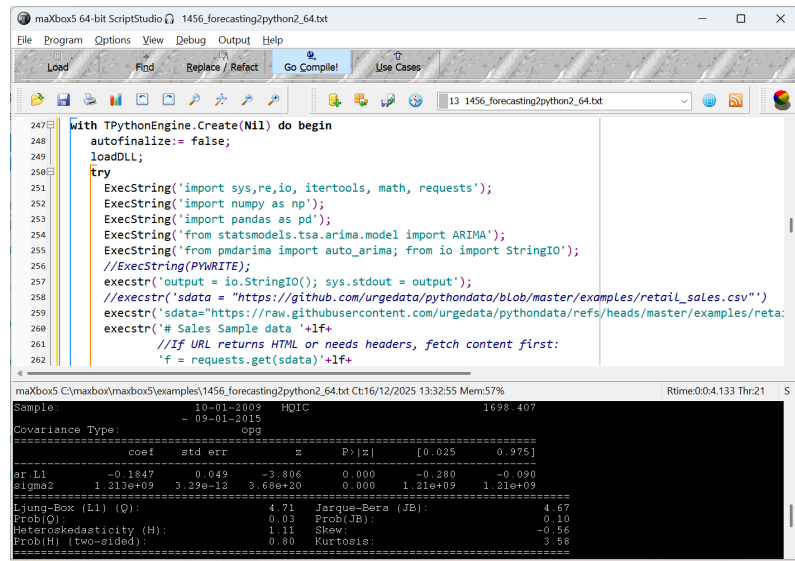
```

C:\Windows\System32\cmd.exe
[notice] A new release of pip is available: 25.2 -> 25.3
[notice] To update, run: C:\Users\User\AppData\Local\Programs\Python\Python314\python.exe -m pip install --upgrade pip
C:\maxbox\maxbox5\pascriptmaster2\pmaster2\restunits\Indy9\maxbox5\maxbox5.py -0
-V:3.15 * Python 3.15 (64-bit)
-V:3.14 Python 3.14 (64-bit)
-V:3.13 Python 3.13 (64-bit)
-V:3.12 Python 3.12 (64-bit)
-V:3.11 Python 3.11 (64-bit)
-V:3.11-32 Python 3.11 (32-bit)
-V:3.10-32 Python 3.10 (32-bit)
-V:3.8 Python 3.8 (64-bit)
C:\maxbox\maxbox5\pascriptmaster2\pmaster2\restunits\Indy9\maxbox5\maxbox5.py -3.14 -m pip install requests
Requirement already satisfied: requests in c:\users\user\appdata\local\programs\python\python314\lib\site-packages (2.32.0)
Requirement already satisfied: charset-normalizer<4,>=2 in c:\users\user\appdata\local\programs\python\python314\lib\site-packages (from requests) (3.4.4)
Requirement already satisfied: idna<4,>=2.5 in c:\users\user\appdata\local\programs\python\python314\lib\site-packages (from requests) (3.11)
Requirement already satisfied: urllib3<3,>=1.21.1 in c:\users\user\appdata\local\programs\python\python314\lib\site-packages (from requests) (2.6.2)
Requirement already satisfied: certifi>=2017.4.17 in c:\users\user\appdata\local\programs\python\python314\lib\site-packages (from requests) (2025.11.12)
[notice] A new release of pip is available: 25.2 -> 25.3
[notice] To update, run: C:\Users\User\AppData\Local\Programs\Python\Python314\python.exe -m pip install --upgrade pip
C:\maxbox\maxbox5\pascriptmaster2\pmaster2\restunits\Indy9\maxbox5\maxbox5>
    
```

py -3.14 -m pip install requests

## 10. Time Series Analysis (ARIMA)

ARIMA (AutoRegressive Integrated Moving Average) remains the workhorse of time-based forecasting. It models trends, seasonality, and noise in historical data to project future values.



```

247 with TPythonEngine.Create(Null) do begin
248     autofinalize:= false;
249     loadDLL;
250     try
251         ExecString('import sys,re,io, itertools, math, requests');
252         ExecString('import numpy as np');
253         ExecString('import pandas as pd');
254         ExecString('from statsmodels.tsa.arima.model import ARIMA');
255         ExecString('from pmdarima import auto_arima; from io import StringIO');
256         //ExecString(PYWRITE);
257         execstr('output = io.StringIO(); sys.stdout = output');
258         //execstr('sdata = "https://github.com/urgedata/pythondata/blob/master/examples/retail_sales.csv"');
259         execstr('sdata="https://raw.githubusercontent.com/urgedata/pythondata/refs/heads/master/examples/reta');
260         execstr('# Sales Sample data '+lf+
261             //If URL returns HTML or needs headers, fetch content first:
262             'f = requests.get(sdata)+'lf+

```

```

Sample:      10-01-2009      HQIC      1630.407
           - 09-01-2015
Covariance Type:      opg
=====
coef      std err      z      P>|z|      [0.025      0.975]
-----
ar.L1      -0.1847      0.049      -3.806      0.000      -0.280      -0.090
sigma2      1.21e+09      3.29e+12      3.68e+20      0.000      1.21e+09      1.21e+09
=====
Ljung-Box (L1) (Q):      4.71      Jarque-Bera (JB):      4.67
Prob(Q):      0.03      Prob(JB):      0.10
Heteroskedasticity (H):      1.11      Skew:      -0.56
Prob(H) (two-sided):      0.80      Kurtosis:      3.58
=====

```

[https://sourceforge.net/projects/maxbox5/files/examples/1456\\_forecasting2python2\\_64.txt/download](https://sourceforge.net/projects/maxbox5/files/examples/1456_forecasting2python2_64.txt/download)

```

1  procedure PY_Solution_ARIMA;
2  begin
3      with TPythonEngine.Create(Null) do begin
4          autofinalize:= false;
5          loadDLL;
6          try
7              ExecString('import sys,re,io, itertools, math, requests
8              ExecString('import numpy as np');
9              ExecString('import pandas as pd');
10             ExecString('from statsmodels.tsa.arima.model import ARI
11             ExecString('from pmdarima import auto_arima; from io im
12             //ExecString(PYWRITE);
13             execstr('output = io.StringIO(); sys.stdout = output');
14             //execstr('sdata = "https://github.com/urgedata/pythond
15             execstr('sdata="https://raw.githubusercontent.com/urged
16             execstr('# Sales Sample data '+lf+
17             //If URL returns HTML or needs headers, fetch c
18             'f = requests.get(sdata)+'lf+
19             'print(f)+'lf+
20             '# Convert text to file-like object '+lf+
21             'data= pd.read_csv(StringIO(f.text),parse_dates
22             'print(data.head)+'lf+
23             '# Auto-select best (p,d,q) parameters'+lf+
24             'auto_model = auto_arima(data["sales"], seasona
25             'print(auto_model.summary())');
26             /// # Fit final ARIMA model
27             execstr('model = ARIMA(data["sales"], order=auto_model.
28                 'fit = model.fit()');
29             /// Forecast for next 6 months
30             ExecStr('forecast = fit.forecast(steps=6)+'lf+
31                 'print(forecast)');
32             println(StringReplace(evalstr('(output.getvalue().strip
33                                     LF,CRLF,[rfReplace
34
35         except
36             raiseError;
37         finally
38             unloadDll;
39             Free;
40         end;
41     end;

```

## 11. FTP UNIX List Access

With IdFTP, the server i'm connecting to is not using UTF-8, but ANSI. There's nothing special about my code, i simply set Host, Username, Password and Connect to server. Then i call List method with no parameters. Iterating through DirectoryListing gives me incorrect results for file names.

```

1  procedure _OnAfterClientLogin(sender: tobject) ;
2  //var FTPListItems: TIdFTPListItem;
3  begin
4  {echo} writ('on after client login sender AStatusTextobj:
5  end;
6
7  procedure OnStatus (ASender: TObject; const AStatusText: str
8  begin
9  {echo} writ(AStatusText);
10 end;
11
12 const  CHOST = 'ftp.suse.de';
13        CUSER = 'anonymous'; //';
14        CPASSWORD = '___'; //'; //}
15
16 procedure testftp_LIST;
17 var ftp: TIdFTP;
18     sStatus: TStrings;
19     i: integer;
20 Begin
21     ftp:= TIdFTP.Create(self);
22     sStatus:= TStringList.create;
23     //ftp.onconnect := @OnStatus;
24     try
25         ftp.OnAfterClientLogin:= @_OnAfterClientLogin;
26         //ftp.OnCreateFTPList
27         ftp.Host:= CHOST;//'94.73.148.47';
28         ftp.Port:=21;
29         ftp.Username := CUSER; //'root';
30         //ftp.Password := CPASSWORD; //'test';
31         ftp.Connect(true, 1200);
32         ftp.Passive:= true;
33         //ftp.TransferType := ftBinary;
34         //ftp.Login; //Can't change from guest user.
35 //RegisterMethod('Procedure List(ADest:TStrings; const ASpeci
36
37         ftp.ChangeDir('../pub/people/');
38         sleep(600)
39         ftp.List(sstatus, '*', false);
40         writ('res1: '+sstatus.text)
41         //writ('res2: '+ftp.DirectoryListing.text)
42         //var i: integer;
43         writ('rescount: '+ittoa(ftp.listresult.count));
44         for i:= 0 to ftp.ListResult.Count -1 do
45             writ(ftp.ListResult[i]);
46         finally
47             sstatus.free;
48             ftp.Quit; //Disconnect;
49             ftp.free;
50         end;
51     end;
52
53 begin // @main
54     maxform1.setconsole;
55     assert2(DateTimeToUnixTime(EncodeDate(1970,1,1))=0, 'DateTi
56     assert2(UnixTimeToDateTime(0)=EncodeDate(1970,1,1), 'UnixTi
57     testftp_LIST();
58 end.

```

- debug: 435- 4294967295 err:0
- True Assert Log: DateTimeToUnixTime mX4 Assertion: 05/01/2026 15:03:11
- True Assert Log: UnixTimeToDateTime mX4 Assertion: 05/01/2026 15:03:11
- debug: 436- 4294967295 err:0
- on after client login sender AStatusTextobj: TIdFTP@8E47A910
- res1:
- rescount: 104
- drwxr-xr-x 2 ftp ftp 4096 May 14 2010 adrian

- drwxr-xr-x 2 ftp ftp 4096 Sep 03 2019 aherrmann
- drwxr-xr-x 3 ftp ftp 4096 Jul 22 2008 aj
- drwxr-xr-x 2 ftp ftp 4096 Oct 21 2014 amach
- drwxr-xr-x 2 ftp ftp 4096 Sep 17 2015 aosthof
- drwxr-xr-x 2 ftp ftp 4096 Sep 09 2011 axels
- drwxr-xr-x 2 ftp ftp 4096 Feb 15 2018 bjin
- drwxr-xr-x 2 ftp ftp 4096 Apr 28 2009 blotz
- drwxr-xr-x 5 ftp ftp 4096 Nov 23 2005 bwhiteley
- drwxr-xr-x 4 ftp ftp 4096 Nov 04 2022 bwiedemann
- drwxr-xr-x 8 ftp ftp 4096 Aug 06 2007 cihlarov
- drwxr-xr-x 3 ftp ftp 4096 Jan 20 2009 ckornacker
- drwxr-xr-x 2 ftp ftp 4096 Apr 03 2020 clin
- drwxr-xr-x 4 ftp ftp 4096 Aug 14 2016 colyli
- drwxr-xr-x 2 ftp ftp 4096 Apr 23 2009 coolo

[Index of /pub/people/](#)

```

110   writ(ftp.ListResult[i]);
111   finally
112     sstatus.free;
113     ftp.Quit; //Disconnect;
114     ftp.free;
115   end;
116 end;
117
118
119 begin // @main
120   maxForm1.setconsole;
121   assert2(DateTimeToUnixTime(EncodeDate(1970,1,1))=0,'DateTimeToUnixTime');
122   assert2(UnixTimeToDateTime(0)=EncodeDate(1970,1,1),'UnixTimeToDateTime');
123   testftp_LIST();
124 end.
125 end.

```

```

maXbox5 C:\maxbox\maxbox5\examples\1458_FTP_Anonymous.pas Ct05/01/2026 15:13:23 Mem:64%
drwxr-xr-x 2 ftp ftp 4096 May 31 2016 vcizek
drwxr-xr-x 2 ftp ftp 4096 Nov 30 2012 vdziejewski
drwxr-xr-x 9 ftp ftp 4096 Oct 15 2023 wengel
drwxr-xr-x 3 ftp ftp 4096 Feb 13 2008 werner
drwxr-xr-x 4 ftp ftp 4096 Dec 14 2007 wstephenson
drwxr-xr-x 4 ftp ftp 4096 Sep 02 2010 yxu
drwxr-xr-x 3 ftp ftp 4096 Mar 11 2010 zoz
□□□ mXS executed: 05/01/2026 15:13:25 Runtime: 0:0:4.23 Memload: 64% use
RemObjects Pascal Script. Copyright (c) 2004-2026 by RemObjects Software & maXbox5

```

[https://sourceforge.net/projects/maxbox5/files/examples/1458\\_FTP\\_Anonymous.pas/download](https://sourceforge.net/projects/maxbox5/files/examples/1458_FTP_Anonymous.pas/download)

## 12. Equation Solver

Pell's equation (also called the Pell–Fermat equation) is a [Diophantine equation](#) of the form:

$$x^2 - ny^2 = 1$$

Task requirements

- find the smallest solution in positive integers to Pell's equation for  $n = \{61, 109, 181, 277\}$ .

```

1  procedure SolvePellPasBigInt( n : integer; out x, y : TInteger
2  var
3     m, a, c, d: integer;
4     p, q, p_next, q_next, p_prev, q_prev: TInteger;
5     evenNrSteps: boolean;
6  begin
7     if (n >= 0) then m:= Trunc(Sqrt( 1.0*n + 0.5)) // or use Ro
8     else m:= 0;
9     if n <= m*m then begin // if n is not a positive non-squ

```

```

10     x:= 1; y:= 0; exit; // return a trivial solution
11 end;
12 c:= m; d:= 1; a:= m;
13 p:= TInteger.create(1);
14 q:= TInteger.create(0);
15 p_prev:= TInteger.create(0);
16 q_prev:= TInteger.create(1);
17 evenNrSteps:= true;
18 repeat
19     // Get next convergent p/q in the continued fraction for
20     p_next:= TInteger.create(0);
21     q_next:= TInteger.create(0);
22     //p_next := a*p + p_prev; //q_next := a*q + q_prev;
23     p_next.assign1(a); p_next.mult(p); p_next.add(p_prev);
24     q_next.assign1(a); q_next.mult(q); q_next.add(q_prev);
25
26     //p_prev := p; p := p_next;
27     //q_prev := q; q := q_next;
28     p_prev.assign(p); p.assign(p_next);
29     q_prev.assign(q); q.assign(q_next);
30
31     // Get the next term a in the continued fraction for sqrt
32     synAssert((n - c*c) mod d = 0); // optional sanity check
33     d:= (n - c*c) div d;
34     a:= (m + c) div d;
35     c:= a*d - c;
36     evenNrSteps := not evenNrSteps;    /**)
37 until (c = m) and (d = 1);
38 {
39     If first return to (c,d) = (m,1) occurs after an even numbe
40     then p^2 - n*q^2 = 1, and there is no solution to x^2 - n
41     Else p^2 - n*q^2 = -1, and to get a solution to x^2 - n*y^2
42     either continue until we return to (c,d) = (m,1) for the
43     or use the short cut below.
44 }
45 if evenNrSteps then begin
46     //x := p; y := q;
47     x.assign(p); y.assign(q);
48 end else begin
49     //x := 2*p*p + 1; y := 2*p*q
50     x.assign1(2); x.mult(p); x.mult(p); x.add1(1);
51     y.assign1(2); y.mult(p); y.mult(q);
52 end;
53 p.free; q.free; p_prev.free; q_prev.free;
54 p_next.free; q_next.free;
55 end;

```

The screenshot shows the maXbox5 64-bit ScriptStudio IDE. The editor displays Pascal code for solving Pell's equation. The code includes comments and function calls like `ShowPellsSolutionBigInt`. The output window at the bottom shows the results of the execution, including the form  $n = 61 \rightarrow (1766319049, 226153980)$  and other solutions for  $n = 109, 181, 277$ . The status bar indicates the runtime and memory usage.

```

743 //TestStringList();
744 //testftp_LIST();
745
746 //Solvepells();
747
748
749 // solved and just
750 ShowPellsSolutionBigInt(61);
751 ShowPellsSolutionBigInt(109);
752 ShowPellsSolutionBigInt(181);
753 ShowPellsSolutionBigInt(277);
754 //TestBigShiftLeft();
755
756 end.
757 end.

```

maXbox5 C:\maxbox\maxbox5\examples\1459\_Pells\_equation1.pas Ct:09/01/2026 17:21:46 Mem:55%

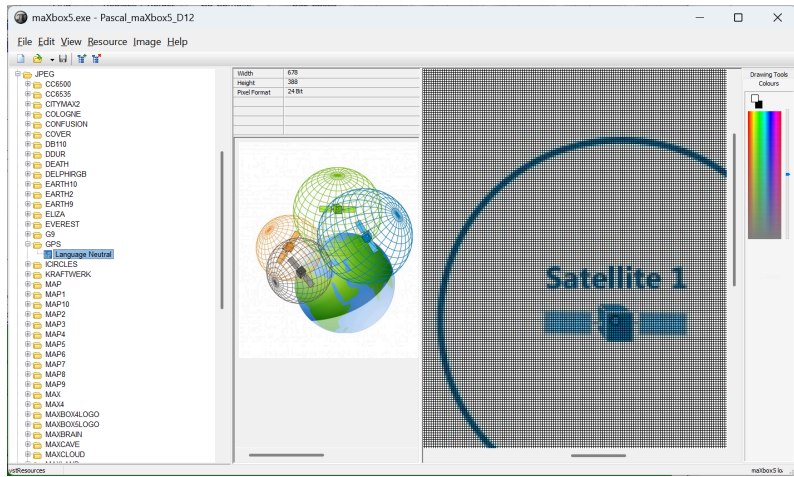
```

delphi,maxbox,pascal,programming
forma: n = 61 --> (1766319049, 226153980)
lineout: n = 61 --> (1766319049, 226153980)
lineout: n = 109 --> (158070671986249, 15140424455100)
lineout: n = 181 --> (2469645423824185801, 183567298683461940)
lineout: n = 277 --> (159150073798980475849, 9562401173878027020)
☐☐ mX5 executed: 09/01/2026 17:21:46 Runtime: 0:0:2.315 Memload: 55% use
RemObjects Pascal Script. Copyright (c) 2004-2026 by RemObjects Software & maXbox5

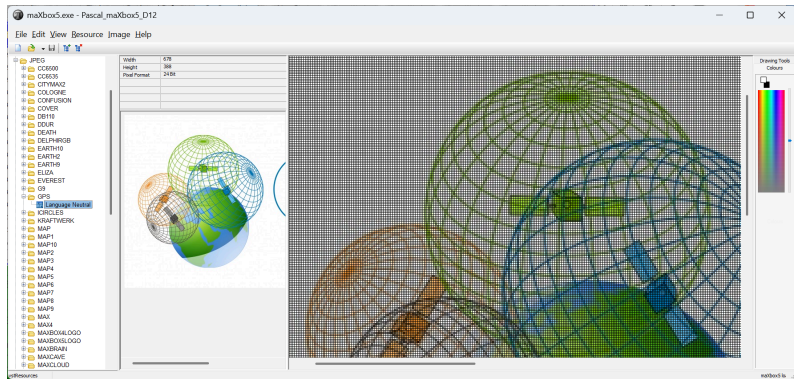
```

[https://sourceforge.net/projects/maxbox5/files/examples/1459\\_Pells\\_equation1.pas/download](https://sourceforge.net/projects/maxbox5/files/examples/1459_Pells_equation1.pas/download)

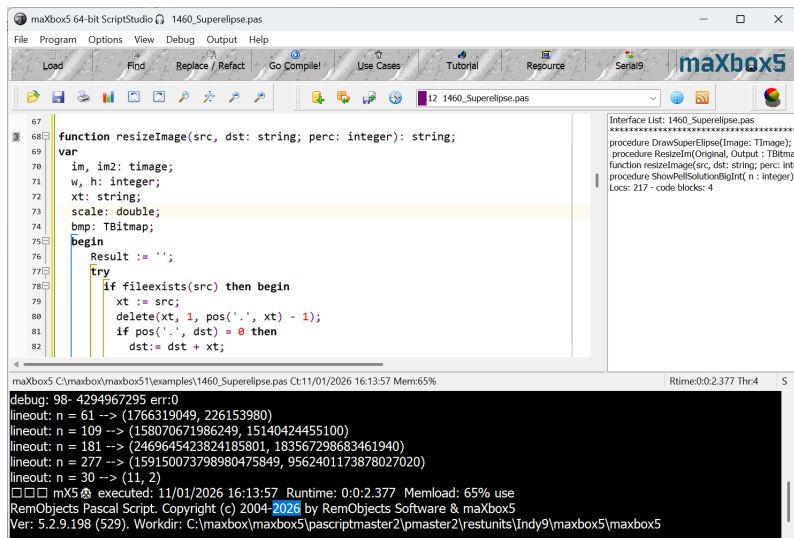
oad



Resource Explorer mX5.2



Resource Explorer Zooms



[https://sourceforge.net/projects/maxbox5/files/examples/1460\\_Superellipse.pas/download](https://sourceforge.net/projects/maxbox5/files/examples/1460_Superellipse.pas/download)

A [superellipse](#) is a geometric figure defined as the set of all points  $(x, y)$  with

$$\left| \frac{x}{a} \right|^n + \left| \frac{y}{b} \right|^n = 1,$$

where  $n$ ,  $a$ , and  $b$  are positive numbers.

#### Task

Draw a superellipse with  $n = 2.5$ , and  $a = b = 200$

[Superellipse – Rosetta Code](#)

GPS and an ellipse are closely related because GPS positions are defined on an ellipsoid, which is a 3-D body generated by rotating an ellipse.

#### Earth as an ellipsoid

- For GPS, the Earth is not treated as a perfect sphere but as an oblate ellipsoid (flattened at the poles, bulging at the equator).
- This ellipsoid is defined mathematically (semi-major axis and flattening), and the standard used by GPS is essentially the WGS-84/GRS80 ellipsoid.

#### GPS coordinates on the ellipsoid

- A GPS receiver first computes a 3D Cartesian position  $(X, Y, Z)$  and then converts it into latitude, longitude, and ellipsoidal height relative to this reference ellipsoid.
- The latitude and longitude you see on a GPS are therefore geodetic coordinates on that ellipsoidal model of Earth, and the reported “height” is the distance above or below the ellipsoid, not directly above mean sea level.

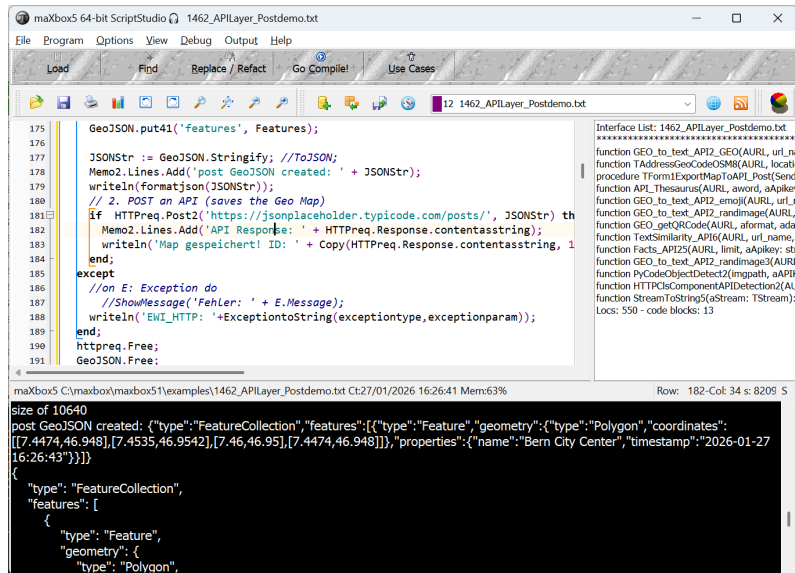
The screenshot shows the Softpedia website interface. At the top, there are navigation tabs for 'WINDOWS APPS', 'MAC APPS', 'LINUX APPS', 'DRIVERS', and 'ANDROID APK'. Below the navigation, there are filters for 'SORT BY' (Last Update, Downloads, Rating) and 'ALL', 'FREE', 'PAID'. The main content area displays a list of software applications:

- maXbox 5.2.9.198**: Create your scripts with this Delphi-based application that enables you to test your algorithms, L... (6,399 downloads, 82.7 MB)
- Amazon ElastiCache Command Line Toolkit 2.33.2 / 1.44.20**: A toolkit that enables users to execute Amazon ElastiCache APIs with simple commands, through inte... (17,250 downloads, 21.9 MB)
- Gradle 9.3.0 / 8.14.3 / 7.6.6 / 6.9.4**: Open-source building tool for Java, C++, Python and other types of software developers, featuring ... (31,850 downloads, 128 MB)
- PMD 7.15.0 / 7.21.0 (16-January-2026) Snapshot**: A simple source code scanner and analysis utility that can help you with your work by detecting in... (56,518 downloads, 67.9 MB)

[maXbox – Download – Softpedia](#)

## Preparing 5.3





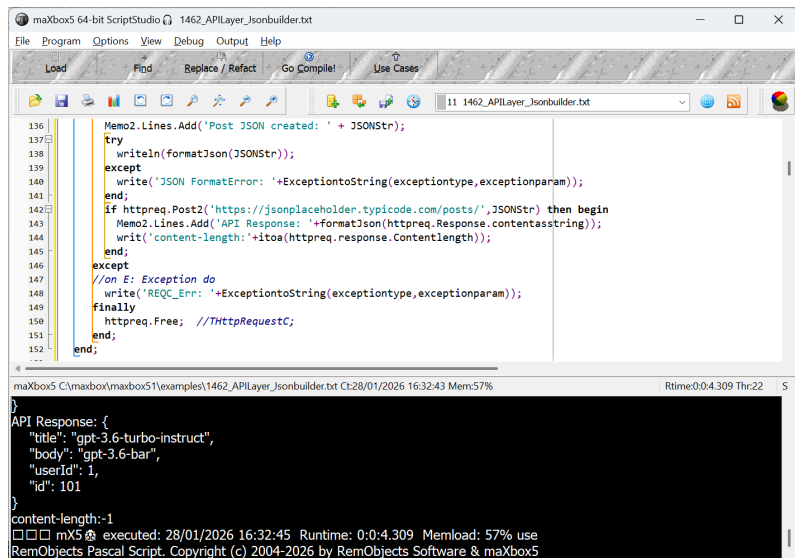
[https://sourceforge.net/projects/maxbox5/files/examples/1462\\_APILayer\\_Postdemo.txt/download](https://sourceforge.net/projects/maxbox5/files/examples/1462_APILayer_Postdemo.txt/download)

JSONPlaceholder is a free online REST API that you can use whenever you need some fake data. It can be in a README on GitHub, for a demo on CodeSandbox, in code examples on Stack Overflow, ...or simply to test things locally.

A REST API responds with the 201 status code whenever a resource is created inside a collection. There may also be times when a new resource is created as a result of some controller action, in which case 201 would also be an appropriate response.

## JSONPlaceholder Test

JSONPlaceholder – Below you'll find examples using [Fetch API](#) but you can JSONPlaceholder with any other language and with maXbox5 as a JSON Bulder:



[https://sourceforge.net/projects/maxbox5/files/examples/1462\\_APILayer\\_Jsonbuilder.txt/download](https://sourceforge.net/projects/maxbox5/files/examples/1462_APILayer_Jsonbuilder.txt/download)

```

fetch('https://jsonplaceholder.typicode.com/posts', {
  method: 'POST',
  body: JSON.stringify({
    title: 'foo',
    body: 'bar',
    userId: 1,
  }),
  headers: {
    'Content-type': 'application/json; charset=UTF-8',
  },
})
.then((response) => response.json())
.then((json) => console.log(json));

```

[JSONPlaceholder – Guide](#)

Important: resource will not be really updated on the server but it will be faked as if.

```

1  procedure TForm1ExportCreateResource_API_Post(Sender: TObject
2  var httpreq: THttpRequestC;
3     JSONStr: string;
4  begin
5     httpreq:= THttpRequestC.create(self);
6     httpreq.headers.add('Content-type: application/json; chars
7     try
8         //JSONStr:= GeoJSON.Stringify; //ToJSON;
9         JSONStr:= '{' +
10        '"title": "gpt-3.6-turbo-instruct",' +
11        //' "prompt": "%s",' +
12        '"body": "gpt-3.6-bar",' +
13        '"userId": 1'+
14        '}' ;
15
16        Memo2.Lines.Add('Post JSON created: ' + JSONStr);
17        try
18            writeln(formatJson(JSONStr));
19        except
20            write('JSON FormatError: '+ExceptionToString(exception
21            end;
22        if httpreq.Post2('https://jsonplaceholder.typicode.com/p
23            Memo2.Lines.Add('API Response: '+formatJson(httpreq.Re
24            writ('content-length: '+itoa(httpreq.response.Contentle
25            end;
26        except
27            //on E: Exception do
28            write('REQC_Err: '+ExceptionToString(exceptiontype, excep
29        finally
30            httpreq.Free; //THttpRequestC;
31        end;
32    end;

```

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