SCOPE OF APPLICATION

1- intro

the actual version of trendingBot [v.1] has been developed to efficiently help experienced data analysts in carrying out their jobs, not as a standalone predictor

additionally to give a proper interpretation to the results, some basic rules should always been observed

- extrapolate as less as possible [boundaries to be respected → (results.xls) max./min. on the RHS]
- make sure that the calculated results are "logical enough"
- perform some historical checking [e.g., forecast some old data and analyse the behaviour] in order to make sure that the behaviour is consistent enough

2- recommendations

list of configurations to maximise the capabilities of the actual version of the program [v.1]

2.1- data types

particularly good behaviours [highly accurate trends] have been observed for the following types

a. natural
   - physical/chemical phenomena
   - biological/medical macroscopic processes

b. engineering/technical
   - machine/mechanism modelling
   - macro-modelling of complex phenomena
   - costs analysis

c. financial/economic
   - medium/long term forecasting [sales, demand, prices, etc.]
   - immediate/short term forecasting [stock market predictions]

d. social
   - surveys/opinion polls analysis
   - human resources (HR) databases analysis and maximisation

2.2- numerical issues

negative values – trendingBot v. 1 can not deal automatically with negative numbers - note that re-scaling can affect drastically the resulting calculations [see "comparison within an environment", appendix I], please contact our support service [support@trendingit.com] to get further information

too high values – due to the stringent system of calculations any introduced number has to pass through, values beyond the boundaries for the given computer precision [usually, double] can easily appear - in order to avoid termination errors provoked by this fact, two limits has been hardcoded [10^{-100} and 10^{50}] - every time any of these extreme values come into force the accuracy from the calculations get worse

number of independent variables [inputs]	max. average for all the values in each case [inputs & output]
2-5	4000
6-8	2000
9-10	500
in case of higher values → factorisation [divide ALL (inputs/outputs for all the cases) by the SAME number]	

table 1 – recommended configurations avoiding the application of hardcoded boundaries

2.3- "proper trend"

trendingBot has been built over a theory highlighting the importance from relative understanding and how likely overall-applicable assumptions tend to provoke errors ["comparison within an environment"] - it considers experienced opinions [on each specific field of expertise] as the only reliable source for generally-speaking

as rough estimation for first-time users, it can be said that a proper trend [most likely capable of short-term forecasting within the expected mean error] was found if the calculated equation, for the default trend definition [maximum error of 5% for, at least, the 85% of the given cases] and a training of, at least, 30 cases, shows a mean error below 5%

2.4- calculations reliability

once again, only experience can provide deep enough insight into the reliability, even the one from a "proper trend" - nevertheless the confidence span of the resulting trend has to be a function of the size of the training set [from 30 to 60 cases], usually a rapidly-increasing function [e.g., exponential]

as estimation, it can be considered as highly reliable the span that comprises between the next day after the end training and the following (cases_training/2) number of days, that is, for 30 cases, the span [35,46]

3- conclusions

trendingBot [in its current version (v. 1)] has been developed on the idea of helping the [experienced] human analyst, not to be run as a standalone predictor - it should be seen as a brute-force translator of complex datasets, converting them from non-understandable to perfectly-predictable

regarding its applicability and the reliability from its calculations, solid-enough rules should only be stated after a exigent-enough testing process [old-historical-data training]