R Programming Language

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Introduction:

- R is a programming language and software environment for statistical analysis, graphics representation and reporting. R was created by Ross Ihaka and Robert Gentleman at the University of Auckland, New Zealand, and is currently developed by the R Development Core Team.
- R is freely available under the GNU General Public License, and pre-compiled binary versions are provided for various operating systems like Linux, Windows and Mac.

High level over view

Beautiful Graphics:-

Visualized data and save new results in vendor and web formats even animations are possible in external packages.

Data reshaping:-

Taking after both APL and Fortran it has specialized data structures and syntax for manipulating data tables.

Open sources:-

Thousands of dollar cheaper than comparable statistical packages. Released under the GPL V2 scheme.

OOP:-

Everything is an object including control structures (these are functions, which are objects) OOP is implemented with generic functions which carry tags to the objects there work on.

Cross Platform:-

It's being developed for the unix, windows and Mac facilities of operating system

New perspective:-

Exploratory graphics are simple to make. The technical interface sends to prompt step by step statistical explanation.

Technical over view

Problem domain:-

Statics Data mining and visualization

Functional:-

R is a functional language in spirit. However it doesn't anything to prevent external side effects, external influences or Assignments.

How Functional:-

R Language permits direct access to passed expression and functions. It allows you to alter and subsequently execute them or create new functions from scratch R engine is Lisp-Like.

Scripting:-

R is a Scripting language with over 2000 libraries, the ability to import a huge variety of data sources and interface with standardize and shared library code.

Scoping:-

Lexical (R functional and is worst cases it takes dynamic scoping rules)

Parameter pass:-

Passes "progressive objects these have 3 slots:- a value, an expression and an environment (a reference caller's environment) when a parameter is accessed, the store expression is assessed in the stored environment and the result is returned.

White space:-

White space characters aren't technically consider but there can be used to resolve ambiguities.

Concurrence:-

R support a variety of concurrent programming models through it's package system(CUDA,MPI, Parallel assign style functions and other chapters)

NULL:-

It has a single NULL object (To which all instances prefer) that's only used to indicate when an object is absent. R uses NA objects to prefer to analog values in a statistical scenario NaN objects for not members.

Features:-

R is an Interpreted language where the clients (Users) typically access it through a command-line interpreter. If a user types 10+5 at the R command prompt and presses enter, then the computer replies with 15, as shown below:

```
> 10+5
[1] 15
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