



TAGINE, AN INTERACTIVE TOOL FOR REPORT GENERATION

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Abstract

This paper describes an APL tool designed as an aid to report writing.

Using APL formatting symbols is quite difficult, and the report formatting phase of a business application program is often very long : TAGINE has been designed to allow quick and easy programming of reports.

TAGINE is divided into two modules :

- 1 - TANA is a simple macro-language intended for describing computations to be performed, and building a model of the final report (with automatic justifications, titles, formatting and decoration).
- 2 - TEDI performs the report generating using the model that has been stored. Most frequently, the end-user uses only the TEDI module.

At the APL division of SLIGOS, we have been using TAGINE for one year and have reduced the report programming effort by a factor of 10 compared to direct use of formatting primitives.

We have built 400 models with TANA, and produced 10000 tables with TEDI.

Systematic use of TAGINE has greatly improved :

- . Applications portability
- . Linking of a variety of applications
- . Product maintenance and reliability

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Introduction

The idea of TAGINE came to a group of fifteen engineers after many years of APL programming. It was written after they had realized that :

- the use of APL formatting symbols is difficult and cumbersome.
- programming the report phase of an application is generally very long in comparison with data input and processing phases.
- the documentation and maintenance of report programs are not very attractive to programmers.
- the modifications of report formats often require either rewriting the programs almost entirely or a large scale transformation ; in both cases it takes quite a long time.

TAGINE was designed for application programmers.

With this tool :

- programmers do not need to know the APL formatting function, although this function is quite powerful. For the formatting support used by TAGINE (which is invisible to the user) is the monadic or dyadic primitive function ∇ . In dyadic use the left argument is either a numeric vector (as in the VS APL formatting system), or an alphanumeric vector. This function makes many actions possible, among which :
 - Aligning on the left
 - Leading numerical zones with zeroes
 - Inserting commas after every third position in the integer part of a numerical zone
 - Filling in a zone with any character if that zone is blank

- Substituting default symbols
- Inserting specific text to the right or left of negative, positive or zero values
- etc-

- they can spend very little time in report programming for an APL application. The average time is divided by ten with TAGINE, compared to direct use of formatting primitives.
- the maintenance of report programs is eliminated and their documentation is reduced to a reference to TAGINE and the listing of a file.
- large modifications of reports can be made in a very short time, by any APL programmer who knows TAGINE.

TAGINE consists of two parts :

TANA : precise description and storage structure in a file by means of simple macro-language.
This part is used only once.

TEDI : reporting using the previously stored description and the numerical data.

A study of over 10000 reports produced with TAGINE has shown that the use of TAGINE entailed no extra production costs (connection or CPU) compared to direct programming of reports.

Finally, TAGINE can be used with no alteration in more than 85 % of business applications.

DEFINITION :

Description of the computation to be executed on rows and/or columns of the initial numerical array.

This action can be executed as many times as required.

A serial number is affected to each row and column of the numerical array. The action DEFINITION modifies this number. Any row or column number can be replaced by an APL expression, then the array is stored in the APL variable \underline{T} (for example : the number of the last row is referred to as $(1+\rho \underline{T})$, the number of the row containing the highest value of the 4th column is referred to as $(\underline{T}[;4], \lceil / \underline{T}[;4])$).

A simple macro language is used to describe the computations to be executed.

An example of how the macro language is used follows ; the initial array consists of 18 rows and 10 columns.

DEFINITION DES LIGNES (ROW DEFINITION)

(The same language is used for columns).

: NO 1 A 7 15 18

The resulting array consists of the first 7 rows of the reference array plus row 15 and row 18, it consists now of 9 rows and 10 columns.

: SOM 3 7 10

The sum of rows 3 7 and 10 of the reference array is catenated at the bottom of the 9 rows-array resulting from the previous command.

: 2 MOINS 5

Row 11 will be the result of the difference between row 2 and row 5.

: 1 DIV 16

Definition of row 12 : $(0 \div 0, N \div 0)$ produces a zero value.

: 3 MULT 18

Row 13.

: MOY 1 A 4 8 9

Row 14 is the arithmetic mean of row 1, 2, 3, 4, 8 and 9 of the reference array.

: 3 SUR 2

The following row is the percentage evaluation of row 3/row 2 (given $N \div 0$, or $0 \div 0 + 0$).

: TOTAL

Row 16 is the sum of all the rows of the reference array.

: TOUTES

All the rows are catenated to the reference array (constituting 34 rows).

: 10 FOIS 7

Row 35 is the product of row 7 multiplied by the scalar 10 (of course an APL expression may be used as a left argument).

: NEW "VALUES :"

During the EDITION action the message "values :" will be printed and the user

will be prompted for a numerical vector which will constitute row 36 in the array.

: NEW 1 10

Row 37 is made up of vector 1 10. That option makes it possible to create temporary rows for special processing.

Example :

DEFINITION

```
...
NEW 1010100000 (7 th row)
...
DEFINITION
...
7 MULT 4
```

Makes it possible to keep only the 1st, 3rd, and 5 th figures of row 4 (0 is represented by a blank).

DEFINITION DES COLONNES (COLUMN DEFINITION) :

At this point the new reference array consists of 37 rows and 10 columns. The processing possibilities are the same as far as columns are concerned, with yet one more :

: 7 POURCENT 3 3 3 5 5 7 7, 30 p 16

Creation of a new column worked out of column 7 and such as the first 3 figures are the percent ratio of the first 3 figures of column 7 divided by the 3rd figures, ... the last 30, the percent ratio of column 7 last figures divided by the 16th figure.

: ...

At each step the heading for the newly created row or column is asked (with default to blank headings).

It is possible to create other processing functions of the same type very quickly.

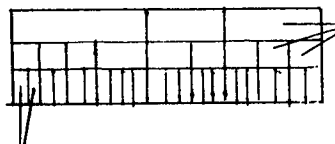
The execution of a new DEFINITION adds to final the preceeding ones (in the above example the reference array would have 37 rows).

TITRE (TITLE)

Introduction of the report title, which will be centered at the top of the report.

GROUPING (COLUMN GROUPING)

Description of column grouping in order to design the column headings of the report. Two levels can be determined, for example :



those headings are asked for during the definition phase.

headings of array columns

First grouping : 2 2 2 3 3 3 2 3 2

Second grouping : 9 6 7

A second execution of GROUPCOL cancels a previous one.

TRA or TRD (SORTING)

Ascending or descending sort of rows according to the values of one column (sortings can be made at one or more levels).

After the execution of this action it is impossible to execute the action DEFINITION.

PARAMETRES (PARAMETERS)

Positioning of the following parameters :

- number of characters necessary for the width of the report (if the minimum number asked for is not sufficient, the width is automatically corrected).
- maximum number of decimals (figures will be rounded as required).
- width of row headings (headings will be shortened).
- presence of space to the right of each figure column.

LIGNES (ROWS)

Shows at any time the headings of rows with a serial number (one slash character (/) embedded in a heading means a new line on the report).

COLONNES (COLUMNS)

Cf. LIGNES. This action concerns the headings of the columns. This action as well as the previous one makes it possible to know at any time the state of the report, especially in the course of DEFINITION actions.

MAQUETTE (MODEL)

This action must be executed before most of the following actions can be used. It elaborates and produces a dummy report with the \$ character in the place of figures and a serial number in front of each row of the array.

Executing this action ratifies all that has been defined by the previous actions. A new execution of MAQUETTE cancels the effect of the following actions.

DEBUT, STOCKAGE and MAQUETTE actions are the only compulsory ones to create a report structure.

DECALE (SHIFT)

This action is used to shift the headings of rows and rearrange them given their position on the dummy report provided by action MAQUETTE.

DEPLIB (MOVE HEADINGS)

This action is used to remove all the headings of rows and to position them elsewhere than to the left of the figures.

LBLANC (BLANK LINES)

This action is used to insert blank lines in the report structure.

GLBLANC

This action is used to insert a given number of blank lines, after each line in the dummy report.

ETOILES (STARS)

The decorator to be found in the array is "*". The action is used to insert one or more rows of "*" in the dummy report.

MFLIGNE and MFCOLONNE (SPECIAL FORMATS)

These actions are used to alter the standard format set for rows and/or columns. It is assumed that all the figures of a same column represent the same type of objects i.e. can fall under a single format, which is not always true. The actions MFLIGNE and MFCOLONNE make it possible to print a numerical array of the following form :

special	123.48	17.4	1823.374	48
format	100	321	218	427
set for row	44.01	123.4	418.701	1324
2	218.00	44.2	27.004	18

CORREC

This action is used to alter the dummy report at detailed level, i.e. to add, suppress or change any character of the dummy report. It works like a text editor (to edit, insert, suppress or modify a row).

CORREC makes it possible for the user to insert in the dummy report the following characters : □, ◇, § et l which are used to generate special processes :

- such a zone as □ □ □ □ □ in the
 ◇ ◇ ◇ ◇ ◇
 ◇ ◇ ◇ ◇ ◇

dummy report means that this zone varies, and will contain particular data inserted during the report generation, and which may vary from one array to another. (for example : date of report).

- the substitution of § and, with § and l means that some figures will be underlined during the report generation.

STOCKAGE (STORAGE)

This action is used to validate the whole definition of the array and store it in a file. Each report is identified by a number and a short description.

During this action the nature of the report will be determined among the two possible ones : fixed or variable :

- Fixed :

The number of lines has been fixed and their heading determined once and for all (yet they can be altered by the use of □ and ◇).

- Variable :

The number of lines of the array may vary (a list for example).

In both cases the number heading of columns is set.

DISPONIBLE (LIST) and SUPPRESSION (DELETE)

Those actions are used to list all the arrays stored in the file and to suppress one or more of them. They can be executed at any time.

EDITION

This action is used to load the workspace in which report are generated. It is not compulsory. Generally the workspace is loaded directly.

VOIR (SEE)

This action is used to show to the user the state of the dummy report at any time of its construction.

Conclusions regarding TANA

The creation of a complex report requires less than 1 hour programming ; the creation of a simple one requires only a few minutes.
An example of use is shown in appendix.

II. TEDI

If one wants to edit a real report from a model previously stored, one must load the workspace TEDI.

Before asking for the report, the initial numerical array must have been created as well as the rows headings if the report belongs to the variable type (if not, this action is not compulsory).

Printing can take place locally or be batch processed on a high-speed printer.

If the report is wider than paper width allows, it is automatically folded and printed pages, the row headings being repeated.

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Appendix

```
)LOAD TANA
SAVED 14:25:33 06/15/81
TRAVAIL
ACTION : DEBUT
INITIALISATION
ACTION : LIG
LIGNE N° 1 JEAN /
LIGNE N° 2 PHILIPPE/
LIGNE N° 3 JACQUES /
LIGNE N° 4 MARTIN /
LIGNE N° 5 FRANCOIS/
LIGNE N° 6 PAUL /
LIGNE N° 7 MICHEL /
LIGNE N° 8 CLAUDE /
LIGNE N° 9 ALAIN /
LIGNE N° 10 BRUNO /
ACTION : COL
COLONNE N° 1 NUAGE
COLONNE N° 2 ETOILE
COLONNE N° 3 POLLEN
COLONNE N° 4 FLEURETTE
COLONNE N° 5 PISTIL
COLONNE N° 6 PETALE
COLONNE N° 7 VERDURE
ACTION : DEF
DEFINITION DES LIGNES :
: NO 1 A 3
: SOM 1 A 3
LIB:
PREMIER SOUS-TOTAL

: NO 4 A 7
: SOM 4 A 7
LIB:
DEUXIEME SOUS-TOTAL

: NO 8 9 10
: SOM 8 A 10
LIB:
TROISIEME SOUS-TOTAL

: SOM 1 A 10
LIB:
TOTAL GENERAL

: MOY 1 A 10
LIB:
MOYENNE

:
DEFINITION DES COLONNES :
: TOUTES
: TOTAL
:

ACTION : COL
COLONNE N° 1 NUAGE
COLONNE N° 2 ETOILE
COLONNE N° 3 POLLEN
COLONNE N° 4 FLEURETTE
COLONNE N° 5 PISTIL
COLONNE N° 6 PETALE
COLONNE N° 7 VERDURE
COLONNE N° 8 TOTAL
```

ACTION : LIG
 LIGNE N° 1 JEAN /
 LIGNE N° 2 PHILIPPE /
 LIGNE N° 3 JACQUES /
 LIGNE N° 4 PREMIER SOUS-TOTAL /
 LIGNE N° 5 MARTIN /
 LIGNE N° 6 FRANCOIS /
 LIGNE N° 7 PAUL /
 LIGNE N° 8 MICHEL /
 LIGNE N° 9 DEUXIEME SOUS-TOTAL /
 LIGNE N° 10 CLAUDE /
 LIGNE N° 11 ALAIN /
 LIGNE N° 12 BRUNO /
 LIGNE N° 13 TROISIEME SOUS-TOTAL/
 LIGNE N° 14 TOTAL GENERAL /
 LIGNE N° 15 MOYENNE /
 ACTION : DEF
 DEFINITION DES LIGNES :
 : TOUTES
 : NEW (701),0
 LIB:
 TEMPORAIRE

:
 DEFINITION DES COLONNES :
 : TOUTES
 : 8 POURCENT 4 4 4 14 9 9 9 9 14 13 13 13 14 14 15
 LIB:
 °/°

:
 ACTION : DEF
 DEFINITION DES LIGNES :
 : NO 1 A 14
 : 16 MULT 15
 LIB:
 MOYENNE

:
 DEFINITION DES COLONNES :
 :

ACTION : LIG
 LIGNE N° 1 JEAN /
 LIGNE N° 2 PHILIPPE /
 LIGNE N° 3 JACQUES /
 LIGNE N° 4 PREMIER SOUS-TOTAL /
 LIGNE N° 5 MARTIN /
 LIGNE N° 6 FRANCOIS /
 LIGNE N° 7 PAUL /
 LIGNE N° 8 MICHEL /
 LIGNE N° 9 DEUXIEME SOUS-TOTAL /
 LIGNE N° 10 CLAUDE /
 LIGNE N° 11 ALAIN /
 LIGNE N° 12 BRUNO /
 LIGNE N° 13 TROISIEME SOUS-TOTAL/
 LIGNE N° 14 TOTAL GENERAL /
 LIGNE N° 15 MOYENNE /
 ACTION : COL
 COLONNE N° 1 NUAGE
 COLONNE N° 2 ETOILE
 COLONNE N° 3 POLLEN
 COLONNE N° 4 FLEURETTE
 COLONNE N° 5 PISTIL
 COLONNE N° 6 PETALE
 COLONNE N° 7 VERDURE
 COLONNE N° 8 TOTAL
 COLONNE N° 9 °/°

ACTION : TIT
 CONTENU :
 DATE:◇◇◇◇◇◇◇◇

DEMONSTRATION DU GENERATEUR DE TABLEAUX

ACTION : GRO
 PREMIER GROUPEMENT (0 SI NON) :2 2 3 1 1
 LIBELLES :
 1 : PREMIER GROUPE
 2 : DEUXIEME GROUPE
 3 : TROISIEME GROUPE
 4 :
 5 :
 DEUXIEME REGROUPEMENT (0 SI NON) :7 1 1
 LIBELLES :
 1 : COLONNES NATURELLES
 2 :
 3 :

ACTION : PAR
 PARAMETRES STANDARDS ? NON
 LARGEUR DU TABLEAU : 120
 NOMBRE MAXI DE DECIMALES : 3
 LARGEUR DES LIBELLES DES LIGNES : 20
 ESPACE A DROITE DES CHIFFRES ? OUI

N° DU TABLEAU?:14
 TABLEAU VARIABLE ? NON
 BREVE DESCRIPTION DU TABLEAU :
 1 : DEMONSTRATION GENERATEUR DE TABLEAUX
 2 :
 2 LIBELLE(S) MODIFIABLES, DESCRIPTION :
 Q1,R1
 1 QUESTIONS, TEXTE DES QUESTIONS :
 1 :DATE DU JOUR?:
 ACTION : NON

ACTION : MAQ

DATE:*****

DEMONSTRATION DU GENERATEUR
DE
TABLEAUX

5--	*****																			
6--	*	COLONNES NATURELLES										*	*	*						
7--	*****																			
8--	*	PREMIER GROUPE			*	DEUXIEME GROUPE			*	TROISIEME GROUPE			*	*	*					
9--	*****																			
10--	*	NUAGE	*	ETOILE	*	POLLEN	*	FLEURETTE	*	PISTIL	*	PETALE	*	VERDURE	*	TOTAL	*	o/o	*	
11--	*****																			
12--	*JEAN	*	55555,55	*	55555,5	*	5555,55	*	5555,55	*	55555,55	*	55555,55	*	5555,5	*	555555,55	*	555,55	*
13--	*PHILIPPE	*	55555,55	*	55555,5	*	5555,55	*	5555,55	*	55555,55	*	55555,55	*	5555,5	*	555555,55	*	555,55	*
14--	*JACQUES	*	55555,55	*	55555,5	*	5555,55	*	5555,55	*	55555,55	*	55555,55	*	5555,5	*	555555,55	*	555,55	*
15--	*PREMIER SOUS-TOTAL	*	55555,55	*	55555,5	*	5555,55	*	5555,55	*	55555,55	*	55555,55	*	5555,5	*	555555,55	*	555,55	*
16--	*MARTIN	*	55555,55	*	55555,5	*	5555,55	*	5555,55	*	55555,55	*	55555,55	*	5555,5	*	555555,55	*	555,55	*
17--	*FRANCOIS	*	55555,55	*	55555,5	*	5555,55	*	5555,55	*	55555,55	*	55555,55	*	5555,5	*	555555,55	*	555,55	*
18--	*PAUL	*	55555,55	*	55555,5	*	5555,55	*	5555,55	*	55555,55	*	55555,55	*	5555,5	*	555555,55	*	555,55	*
19--	*MICHEL	*	55555,55	*	55555,5	*	5555,55	*	5555,55	*	55555,55	*	55555,55	*	5555,5	*	555555,55	*	555,55	*
20--	*DEUXIEME SOUS-TOTAL	*	55555,55	*	55555,5	*	5555,55	*	5555,55	*	55555,55	*	55555,55	*	5555,5	*	555555,55	*	555,55	*
21--	*CLAUDE	*	55555,55	*	55555,5	*	5555,55	*	5555,55	*	55555,55	*	55555,55	*	5555,5	*	555555,55	*	555,55	*
22--	*ALAIN	*	55555,55	*	55555,5	*	5555,55	*	5555,55	*	55555,55	*	55555,55	*	5555,5	*	555555,55	*	555,55	*
23--	*BRUNO	*	55555,55	*	55555,5	*	5555,55	*	5555,55	*	55555,55	*	55555,55	*	5555,5	*	555555,55	*	555,55	*
24--	*TROISIEME SOUS-TOTAL	*	55555,55	*	55555,5	*	5555,55	*	5555,55	*	55555,55	*	55555,55	*	5555,5	*	555555,55	*	555,55	*
25--	*TOTAL GENERAL	*	55555,55	*	55555,5	*	5555,55	*	5555,55	*	55555,55	*	55555,55	*	5555,5	*	555555,55	*	555,55	*
26--	*MOYENNE	*	55555,55	*	55555,5	*	5555,55	*	5555,55	*	55555,55	*	55555,55	*	5555,5	*	555555,55	*	555,55	*
27--	*****																			

ACTION : DEC

VALEURS DES DECALAGES : 4 4 4 2 4 4 4 2 4 4 4 2 0 0

ACTION : DEP

N° DU GROUPE APRES LEQUEL PLACER LES LIBELLES DES LIGNES : 1

ACTION : LBL

N° DES LIGNES APRES LESQUELLES METTRE DES BLANCHES : 13 16 17 17 21 22 22 25 26 26 26 27 27 27 28 28

N° FAUX!

N° DES LIGNES APRES LESQUELLES METTRE DES BLANCHES : 11 14 15 15 19 20 20 23 24 24 24 25 25 25 26 26

ACTION : VOI

DATE:*****

DEMONSTRATION DU GENERATEUR
DE
TABLEAUX

5**	COLONNES NATURELLES										*	*	*							
6**											*	*	*							
7**											*	*	*							
8**	PREMIER GROUPE	*	DEUXIEME GROUPE	*	TROISIEME GROUPE	*				*	*	*								
9**											*	*	*							
10**	NUAGE	*	ETOILE	*	POLLEN	*	FLEURETTE	*	PISTIL	*	PETALE	*	VERDURE	*	TOTAL	*	%	*		
11**											*	*	*	*	*	*	*	*	*	
12**	*		*		*		*		*		*		*		*		*			
13**	#####	*	#####	*	#####	*	#####	*	#####	*	#####	*	#####	*	JEAN	*	#####	*	#####	*
14**	#####	*	#####	*	#####	*	#####	*	#####	*	#####	*	#####	*	PHILIPPE	*	#####	*	#####	*
15**	#####	*	#####	*	#####	*	#####	*	#####	*	#####	*	#####	*	JACQUES	*	#####	*	#####	*
16**	*		*		*		*		*		*		*			*		*		
17**	#####	*	#####	*	#####	*	#####	*	#####	*	#####	*	#####	*	PREMIER SOUS-TOTAL*	*	#####	*	#####	*
18**	*		*		*		*		*		*		*			*		*		
19**	*		*		*		*		*		*		*			*		*		
20**	#####	*	#####	*	#####	*	#####	*	#####	*	#####	*	#####	*	MARTIN	*	#####	*	#####	*
21**	#####	*	#####	*	#####	*	#####	*	#####	*	#####	*	#####	*	FRANCOIS	*	#####	*	#####	*
22**	#####	*	#####	*	#####	*	#####	*	#####	*	#####	*	#####	*	PAUL	*	#####	*	#####	*
23**	#####	*	#####	*	#####	*	#####	*	#####	*	#####	*	#####	*	MICHEL	*	#####	*	#####	*
24**	*		*		*		*		*		*		*			*		*		
25**	#####	*	#####	*	#####	*	#####	*	#####	*	#####	*	#####	*	DEUXIEME SOUS-TOTAL*	*	#####	*	#####	*
26**	*		*		*		*		*		*		*			*		*		
27**	*		*		*		*		*		*		*			*		*		
28**	#####	*	#####	*	#####	*	#####	*	#####	*	#####	*	#####	*	CLAUDE	*	#####	*	#####	*
29**	#####	*	#####	*	#####	*	#####	*	#####	*	#####	*	#####	*	ALAIN	*	#####	*	#####	*
30**	#####	*	#####	*	#####	*	#####	*	#####	*	#####	*	#####	*	BRUNO	*	#####	*	#####	*
31**	*		*		*		*		*		*		*			*		*		
32**	#####	*	#####	*	#####	*	#####	*	#####	*	#####	*	#####	*	TROISIEME SOUS-TOTAL*	*	#####	*	#####	*
33**	*		*		*		*		*		*		*			*		*		
34**	*		*		*		*		*		*		*			*		*		
35**	*		*		*		*		*		*		*			*		*		
36**	#####	*	#####	*	#####	*	#####	*	#####	*	#####	*	#####	*	TOTAL GENERAL	*	#####	*	#####	*
37**	*		*		*		*		*		*		*			*		*		
38**	*		*		*		*		*		*		*			*		*		
39**	*		*		*		*		*		*		*			*		*		
40**	#####	*	#####	*	#####	*	#####	*	#####	*	#####	*	#####	*	MOYENNE	*	#####	*	#####	*
41**	*		*		*		*		*		*		*			*		*		
42**	*		*		*		*		*		*		*			*		*		
43**											*	*	*							

)LOAD TEDI
 SAVED 14:55:48 06/15/81
 pATT
 10 7

R1←'14'
 TABLEAU 14
 DEMONSTRATION GENERATEUR DE TABLEAUX
 OUI ? OUI
 DATE DU JOUR?:16-6-81
 EDITION LOCALE ? OUI
 METTEZ LE PAPIER EN PLACE ET FAITES UN RETOUR-CHARIOT A LA SONNETTE

DATE:○○○○○○○○

DEMONSTRATION DU GENERATEUR
 DE
 TABLEAUX

TABLEAU N°: ○○○○

***** COLONNES NATURELLES *****									
PREMIER GROUPE		DEUXIEME GROUPE		TROISIEME GROUPE					
NUAGE	ETOILE	POLLEN	FLEURETTE	PISTIL	PETALE	VERDURE	TOTAL	*/%	
642.19*	642.2*	0.66*	59.11*	59.11*	556.93*	13.0*	JEAN	1973.19*	3.83*
36841.52*	2158.5*	89.32*	40.78*	40.78*	139.98*	73.0*	PHILIPPE	39383.86*	76.47*
9438.26*	438.3*	23.61*	92.08*	92.08*	44.12*	18.6*	JACQUES	10147.01*	19.70*
46921.97*	3238.9*	113.59*	191.97*	191.97*	741.03*	104.6*	PREMIER TOTAL	51504.06*	18.85*
22276.41*	1723.6*	30.93*	69.03*	69.03*	361.72*	22.0*	MARTIN	24552.71*	23.44*
31564.25*	1435.7*	91.90*	52.48*	52.48*	435.48*	85.1*	FRANCOIS	33717.44*	32.19*
17440.17*	559.8*	31.86*	62.44*	62.44*	146.23*	69.6*	PAUL	18372.57*	17.54*
23994.83*	2994.8*	56.57*	61.20*	61.20*	873.49*	50.6*	MICHEL	28092.72*	26.82*
95275.66*	6714.0*	211.26*	245.15*	245.15*	1816.92*	227.3*	DEUXIEME TOTAL	104735.44*	38.34*
39080.78*	80.8*	86.77*	64.39*	64.39*	818.84*	45.2*	CLAUDE	40241.15*	34.41*
37659.27*	1659.3*	20.03*	76.90*	76.90*	667.28*	35.3*	ALAIN	40194.95*	34.37*
34097.34*	1902.7*	92.91*	41.77*	41.77*	264.95*	69.3*	BRUNO	36510.70*	31.22*
110837.39*	3642.7*	199.71*	183.06*	183.06*	1751.07*	149.8*	TROISIEME TOTAL	116946.80*	42.81*
253035.02*	13595.6*	524.56*	620.18*	620.18*	4309.02*	481.7*	TOTAL GENERAL	273186.30*	100.00*
25304*	1360*	52*	62*	62*	431	48*	MOYENNE	27319*	30*