

Comparison Between Programming Languages Prolog , C ++ , Pascal

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1. Introduction

The temporal evolution and expansion of the areas of the use of electronic computers has increased in the accumulation of knowledge and the size of the symbols used until later formed the so-called programming languages "Programming Language" and is characterized by programming languages in fact instructed composed of sentences, not symbols grouped only, in addition to the fact that these sentences are very close to the sentences used in normal conversational languages.

I have many number of these languages to expand coding on the one hand, and the different areas of use systems, computer has made studies in more than one center of electronic computing centers around the possibility of the development of languages commensurate with the area where he works, and here began the logic in multiple programming languages and expansion has been published in the last twenty years, a large number of languages that are designed on the principles of different codes, which popularized the use of the department of comprehensiveness and accuracy and has become used on a global level, and which disappeared or remained section used on a small scale and within limited areas.

It is the most important languages that has spread on a global level language Fortran and Pascal and Fortran language Gobol language C ++.Data Processing

1.1Pascal language

Is the Pascal language of important Supreme languages education created by the world Nicklaus and Brett in 1968, relying on the principles of an earlier language called the language Algol-60 and then the York company developed to become an integrated language at the macro level and all the big ones and small appliances where they can by Pascal create the program file and the addition of the operations, the large size of the program and make all the connections with the sub-programs and operating systems, as well as the program can be stored and called up and running and purified from linguistic and grammatical mistakes. This language has been invited Pascals proportion to the great French mathematician (Blaise Pascal), who lived during the sixteenth century (1662-1623) and was credited with the discovery of the first mechanical calculator processes the data in the mechanism. Pascal language from the upper high-end multi-purpose languages where it can be used in various engineering, economic, military and other fields.

Each program written in Pascal language organizational structure contains three main sections, some optional and some in writing to be present even in the translator can and can call for a meeting with the program . The first section of the program consists of only one line contains the program name or address (Program Heading) and begins a word reserved (Program), followed by the program, which is subject to the rules of nomenclature for the programmer and the names of variables, where we consider the program the name of a variable value can be selected from the non-reserved words as no title can be replicated in other program variables are of a single property values of variables in each program, and follows the name of the program and within the parentheses input and output file names become the general formula where the first section for the definition of the program as follows :

variable name Program name (input, Output file name)

See a set phrase in parentheses is an optional if not used files but preferably described in the introduction to the program to illustrate the general formula to insert and remove, and read files or show results in the form of files that show where the word "Input" if the work program requires the introduction of data through a communication media show word Output whether output appears on one of the modes of directing the display or printing, and it requires a definition of the media because it is a standard part of the media system and separates these regular interval definitions, can also be added to the previous definitions of the names of the files used in the program file-Name if the processors require call such files.

1.2 C ++ language

C-language design depends largely on the mother language C, where he received a C language mother in great demand during the seventies and eighties my contract even though they contain a means of expressions

and close to the low-lying languages. The roots of the development of C language to programming languages by the Thompson develop a language BCPL and called the language of B taking the same approach in the CPL language that put founded by Martin Richard 1967 design has designers adopted the C ++ language to use some of the tools available in the parent C language and B as well as the use of some means available in the language Simula classes such as the concept of rows and rows deductive "Derived Classes" language of C ++ as well as on the design adopted in other languages such as (Algol-68).

C ++ name has appeared in the early eighties Jat was the first version called C with classes C with classes. Adopt the language of C ++ installed in the C language and the mother of the means of many variables and compared to the original C language. And based on the C ++ language is invoked in the functions and processing of mathematical expressions and other languages the same principle C.

It contains the C ++ language on the concept of direct substitution In-Line to compensate for the pairing, which provides the advantage of flexibility during the implementation of the program operations. The C ++ language of languages that have the status of expression variables and vocabulary formulas have the force of expression and the power of reading and classification of data and the diversification of the data and audit and compliance.

C ++ language is characterized by its propensity to handle large and complex applications, as well as strength in the maintenance of programs written in that language which saves time in the design and the necessary additions to the programs and development. It means in the language of the new C ++ Classes concept and principle of rows that will help in reducing the number of software sentences compared with sentences as well as the C language to enrich the character of strength and beauty.

C ++ language provides the means and methods close to the concept of rights in dealing with problems. And the method adopted in the design of any program from C ++ programs is:

First: study the broplem thorough study to identify the key concepts in the solution steps and then transform the solution steps to the formats accepted by the programming language.

Second: Identify key concepts related to the solution of the issue and then try to express these concepts a manner that ensures strength and comparison.

Third: Conversion of the basic concepts and non-core to the C ++ language and other words transform the solution steps to vocabulary C ++.

1.3 Language Prolog

Considered the language of Prolog of languages the fifth generation of computers because they turned the programming of electronic computers to a new and sophisticated direction and the reason for this is due to the nature of the language Prolog logical that pushed to build a strong and amazing applications in a relatively quick time called the language Prolog also the language of artificial intelligence and to its potential in building programs knowledge bases, expert systems, natural language processing, and others that are considered artificial intelligence fields. That the name came from the language Prolog two sections:

The mean linear programming in Logic

Prolog developed a language for the first time in Marseille University in France by Alain Colmeraner at the beginning of the seventies, the language needs to Prolog 1/10 ten steps from the Pascal language, for example, when the same issue resolved in a particular area.

Prolog language program consists of three main parts:

Domains: This section is used to define the key variables in the known relations in the next section (Predicates) and uses sign (=) in the definition of process variables.

Predicates: This section is used to define the relationship used in the program and in the definition of the relationship and the name of the variables and the relationship is often placed before the name of the programmer, where she not be reserved in the calculator.

Clauses: This section is used to write a logical sentence, which represents Prolog consisting of Facts Facts and rules Rules language program and writes the truth always point directly terminated either always write the rules in the form of two parts: Head: - Tail

2. Pascal program can be implemented by following the steps two processes :

1. Pascal translation step program to machine language, and the use of such order compile .
2. If confirmed, after the free program translated into machine language mistakes comes the role of the executive step and using the order Execute.

In the first step we may need to connect the software programs or other associations ready in the computer memory and a bonding process that we use such injunction link .In the second step of the implementation process between the PC and the large computer is different, because we need to introduce a separate file to insert data when using large computer prior to the introduction of the program itself .

In implementing the program, the data values are read from the input file directly, and after the implementation of the program, the results are stored in a file to be self-directed, too, print the results of the output file to print the paper, for example:

We use a prompt Type output Data

Some forms of Pascal accept instruct Run instead of machine translation into steps compile and link connectivity, implementation and execute it in one step is Run It is worth mentioning here that the coder to brief guide on the computer, who wants to use because there are some differences.

• Error Treatment Program

Fashionable in the world of translation, that the programmer enters mistakes unintentionally to the program prepared by, and on closer examination the general reasons for the mistakes can programmed to avoid a large number of them, and this process is called "Debugging" any search for mistakes to fix in this paragraph offer some types of errors that may be get.

1. errors resulting from the translation of the software into the computer language "compilationerror".

2. operational errors.

3. logical errors.

- An example of processing errors in the program

program circle (input, output);

const pi= 3.14159;

var

radins , area , read;

Begin

readln (readins)

area:=pi* sqrt (radius) ;

writeln (area)

end.

Error in this program is the use of Sqrt instead of Sqr, so the result is printed when the radius be 10.0 instead of 9.9346 instead of 314.1593. When correct this error return the result to the right position.

Example / Pascal program pressure that calculates P gas at temperature T = 500.2 and the volume V = 1.5 moles n = 2 for a number of the ideal gas equation of pressure

$pV=nRT$

If the gas constant R = 082

program pressure (input , output)

const

R=0.082;

var

n:integer;

p,v,t: real;

Begin

Readln (n,v,t);

P:=n* T/v;

write (' n = ',n , ' T = ',T , ' V = ', v , ' p = ', p.)

END.

2.1 Data processing C ++ language

• process the C ++ language file as a series of knowledge stream of character and the program deals with this knowledge, where up to them one after the other in sequence.

• Use functions () Put () , getto handle files. can use, Get the two functions ()Put () to read and write a single letter in the file is the fastest two posts compared with the input and stimuli >> output << users for this purpose. The signifier get () returns a single character from the input file, for example, if the file is open in file instream entity of the class, the following sentence:

() in file get.

The recovery of the next character by index (FPI)

This means that if the FPI value equal to 4, the sentence above relive Alharv fourth character in a series in which the file flow IN FILE

As the function `get ()` can detect the end of the file, and this is what can not be done by coefficient output `>>`. the function `Put ()`, applied in an open file such as the flow, it writes out a copy of the storage in a particular typeface `Text` variable at the site referred to by the index FPI. The following program unites how to use the two functions `() Put ()`, `get` to copy the character text file to another text file sequentially distorted after another.
in file. `get()`.

The recovery of the next character by index (FPI). This means that if the FPI value equal to 4, the sentence above relive the fourth character in the text string in which the file flow IN FILE. As the function `get ()` can detect the end of the file, and this is what can not be done by coefficient output `>>` .The function `Put ()`, applied in an open file such as the flow, it writes out a copy of the storage in a particular typeface `texts` variable at the site referred to by the index FPI .The following program unites how to use the two functions `Put ()`, `get ()` to copy the character text file to another text file sequentially distorted after another.

```
# include <fstream.h>
# include <iostream. h >
# include <stdlib. h >
int main
{
char file name [81];
char ch;
cout << "\n Enter the name of the source file:" ;
cin. get lin (fil name, 81);
in stream sorce (file name);
if (! source )
{
cout << "\n ERROR : file cannot be opened ." ;
cin. getlin (fil name, 81);
of stream target (file name);
if (! target)
{
cout << "\n ERRoR : file cannot to opened. " ;
exit (1) ;
}
while ( (ch=source. get ( ) ) !=Eof)
target . put (ch);
source. close ( ) ;
target . close ( ) ;
return ( ) ;
}
}
```

The C ++ language processing files by their types

2.1.1 Processing sequential files

The following program shows how to handle text files consisting of sequential records, where the program reads the sales records and displays only those records that increase the value of sales by about 500 dinars .Note that the program starts to get the user the file name and open file as input. Then line appears (column names) on the screen and then the program will read the records in chronological order and the other one by this process and are in accordance with the following rules :

1. Read the first record of the file immediately after it opened .
2. Read the next record immediately after the end of the program from the data in the current record processing.

```
# include <fstream. h >
# include <iostream. h >
# include <iostream. h >
# include <stdlib. h >
int main
{
char file name [81];
int prodno;
int sales
double total;
double perice;
```

```

cout << setprecision (2)
    << setios flagees (ios :: fixed)
    << setios flagees (ios :: show point);
cout << "\n enter the name of the sales file : ";
cin. getlin (fil name, 81);
if stream sales file (file name);
if (! sales file)
{
cout << "\n ERROR : file could not be opened ." ;
exit (1);
}
cout << endl << endl;
cout << setw (8) << "product no." << setw (10) << "salse
    << setw (10) << "price " << setw (12) << "Total " << endl
sales file >> prodno >> sales >> price
while (! sales file. eof ( ))
{
total = sales * price;
if (total > 500.00)
{
cout << setw (8) << prodno << setw (10) sales
    << setw (10) << price << setw (12) << total << endl;
}
sales file >> prodno >> sales >> price;
}
sales file . close ( );
return ( );
}
    
```

2.1.2 Treatment serial binary files

Previously we dealt with a text file consisting of records, each line ends with a new line character code includes New line character and we used the vacuum to separate the fields code in these records. The problem in such files that do not represent the fields of integrated modules which write and read as a whole, but the letter after letter. Therefore, the language C ++ provides the possibility of a full record processing unit through an integrated storage infrastructure Struct. We can use the function Write () to write the data structure with struct in the binary file and general formula to be used in this function is

```
write ((char *) ptr. item-size);
```

Where prt, is the first parameter of the function and indicates the location of the data to be written, a texts index. The second parameter to this function is the number of characters that will be written and used the function size of () to determine the size of the structure when all the process of writing.

2.2 Data Processing Language Prolog

There are many ways to manipulate data in the language of Prolog including :

First: List-Processing Predicates

Prolog reduced the length of the program because of the language of design, construction and fitting following figure shows some common files in the address lists

i is the first element of the list L L list, i element first (L , i)

i is the last element of the list L L list, i element last (L , i)

Here's unspoken definition computes the first element of the list throughout the Unknown first ([x, l], x) .This expression is treated as fact, but as a rule remember that facts are rules without party right. This refers to any element x and L to any list .

This latter definition of what List :

Last ([x], x)

Last ([x] [L], x₂): - Last (L, x₂)

The first line states that the final element of the list contains a single element is that element. The second line, stating that the last element of the list is empty is the last element of the problem by removing the first element .

As an example, the definition of addressing the menu, we take into consideration the (X, L) Member that be true if X L element within the list .

member (X, [X, L])

member (X, [Y, L]): - member (X, L).

States the fact that X is an element of the state list whether the first element, we do not need to choose the rest of the menu, and selected only whether element X from the rest of the menu items .
member (X, []): $-1 = 2$.

Considering that 1 does not equal 2 never rule never ascertains, but the language is considered Prolog failure when using rewards lack of base on the launch pad. This is the base for the previous useless.

Second: Some Mathematics accounts

Impose the presence of some putative expressions and b together and each has a probability of success and the cost of π_i c_i expressions numbered from left to right. Take two expressions adjacent or $i + 1$ to switch between the two accounts improves the cost if

$$c_i + \pi_i c_{i+1} > c_{i+1} + \pi_{i+1} c_i$$

find:

$$(1 - \pi_i + 1) c_i > (1 - \pi_{i+1}) c_{i+1}$$

$$(1 - \pi_i) / c_i < (1 - \pi_{i+1}) / c_{i+1}$$

In other words, the likelihood ratio can be used to cost-feeding failure criterion adjacent expressions, because the re-switch adjacent expressions was to sort the list and get the best arrangement for and

The formula is simpler in or, switch between two expressions adjacent or $i + 1$ in or:

$$c_i + (1 - \pi_i) c_{i+1} > c_{i+1} + (1 - \pi_{i+1}) c_i$$

or

$$\pi_i / c_i < \pi_{i+1} / c_{i+1}$$

Take the following example: -a, b?

Where that's a likelihood of success, . 0, and for the possibility of b 0.8

Then must come a first. This can be seen by using the formula and

$$(1 - 0.6) / 1 > (1 - 0.8) / 1 \text{ or } 0.4 > 0.2$$

But suppose that a knowledge of the form:

a: - c, d.

We need time to find a larger version of a no question followed by a question d, c if they cost the same question.

$(1 - 0.6) / 3 < (1 - 0.8) / 1$ since $0.1333 < 0.2$ Better put B in original placed first in the question.

2.2.1 Conclusion possibilities Reasoning

It is a third way to address the questions of long the idea is to infer the possibilities range from each mutant separately and ignore the connections and take the last section.

-a (x), b (x, y), c (z), d (x, z), e (x).

Let us assume the existence of a limited number of real ways for each expression can collect the possible values for x in order to verify the statement (x) a, then we experience any of them achieves (x) a. And then choose to achieve (x, y) b for the remaining tests. After far both build the possible values for z and check that (z) c which is consistent with the $W_i - x$. Hristit needs (x, z) d any truth must be included after the isolation of impossibilities. The conclusion could be called relaxation.

2.3 Output in Pascal

There are several sentences used to print text or values in the Pascal language, including:

1. inter writing (printing) write Statement

This sentence is used to print either the values of the data or the results of the programs and take the following general picture:

write (variables, constants, string, expressions)

Where this sentence print output values of:

Variables: real variables or incorrect or symbolic

Constants calculation constants

String symbolic constants

To the output file or directly on the computer screen and in any order.

Example

write (a, b, n)

Cause in print values of these variables to the output file or on the computer screen as follows:

1200 52.4 12.6

Example / print the following phrase printed fixed numerical values:

write ('pie =', 3.142159);

Printing appear as follows:

pie = 3.142159

Example / The following wholesale printing the constant symbolic
 write ('my name is Ahmed')
 Printing appears as follows:
 my name is Ahmed

Example / print on a mathematical expression values:
 write ('difference =', x-y)
 If we assume that 5 = x, 2 = y, the printing image appears:
 difference = 3

2.3.1 Printing sentence in a new line "write in statement "

This sentence does not differ from the print campaign in the write function, but differs in the way of performance, which makes printing writeln inter start a new line, and the example show mechanical work of this sentence.

```
writeln ('x =', x, y =, y, 'm =', m);
writeln ('n =', n, 's =', s = 't =', t);
```

Show print on the following image:

```
x = 1.260000E +01 y = 5.230000E + 01 m = -100
n = 1200 s-red t = blue
```

Note here that the first write caused in starting the printing of the phrase second writeln from the beginning of the second line for the rest of the values, while inter second writeln not have any impact beyond that, because it does not then any sentence other print, so if replaced its writeln second inter extraordinary write what change print form that you see in this example. Note: If we wrote writeln alone in an empty line, it caused the line after the events free, any jump that the printing line and we can make it jump over a blank line as in the following example:

```
writeln ('first line');
writeln;
writeln ('second line'); the printing image appears as follows:
```

```
first line
second line
```

in the delete writeln Central become the printing image also comes

2.3.2 Printing inter formulated Formatted write

Printing using inter formulated, we can control the number of digits that you need all printed values, whether they are true or real or symbolic or logical values and place the wording on each of the two sentences writeln, write both.

A. Print integers formula:

The difference between the print formulated and non-inter formulated is that we keep the number of digits required for the value of the variable signal after the colon: after the variable name and the as following example:

Example / Suppose that a = 13 and b = -205 (both are true) to print the following sentence is formulated to provide three boxes for a variable and five boxes of the variable b:

```
writel('a = ', a:3, 'b=', b : 5 );
```

Show print on the following image:

a	=		1	3	B	=		-	2	0	5
---	---	--	---	---	---	---	--	---	---	---	---

B. Print formula real numbers:

And resemble correct in terms of booking a certain number of boxes of the real number of print setup mode, mention it after the signal points: In addition, Two other points: little beyond directly the number of digits required detention after the decimal point, and are sometimes rounded (rotate) decimal decimal to a fraction of the real number, The following example shows how to use the print version of the real to prepare:

Example / Suppose x = 12345.678

The print form is x = 12345.678

Where the total number of 10 digits, including the 3 right of the interval.

C. The new formula Page Page:

Using this formula, the printing that phrase followed by for print head in a new page following example shows how to use them.

```
write(a,b) ;
page;
```


write (c,d);

2.4 The Output in C++ language

operations performed by coefficient >> It is called a constant added or insertion operator name added coefficient because it is used in addition to the data stream or the path that ultimately leads to the appearance of the data on the screen using the default, which is unstable cout (standar output) defined in iostream.n former coefficient data can be transformed to the screen by default, or to any other stream.

```
cout << x;
```

The coefficient added quite like the rest of the coefficients C ++ has a priority and be a minimum is implemented or the compilation of expression from left to right. therefore that his priority as a minimum, the following statement will be implemented in the desired output derail collect transgender y, x:

```
cout << x+y ;
```

Example / Print to number 100 in the C ++ language

```
# include "stdafx.n"
# include "iostream.n"
main ()
{
  cont << 100 :
  return ;
}
```

Print texts (symbolic constants)

```
# include "stdafx.n"
# include "iostream.n"
main ()
{
  cont << "smoking is dangerous" << endl;
  returno;
}
```

In implementing the program prints the following output:

smoking is dangerous

Print numerical values

Example / The following program prints the number 446 as values on a computer screen:

```
# include "stdafx.n"
# include "iostream.n"
main ()
{
  cont <<446;
  returno;
}
```

When printing the following shows us

446

2.5 Print numerical and symbolic values (text) in a single sentence :

Example / We will in this example prints the numerical values and text with the other as follows

```
# include "stdafx.n"
# include "iostream.n"
main ()
{
  int a =100;
  cont << "a =" <<a;
  returno;
}
```

When printing the following shows us

A=100

2.6 Output in the language Prolog

That the output in the language Prolog it is different from the rest of the programming languages where the output screen within the main screen of the program. The language directing Prologmany forms, including:

- **Internal and external target**

When is the introduction of a direct question from the implementation screen: Goal such as (x, y) father called this case the outer question in this case is the language of Prolog finding possible solutions to compensate for the (x, y) self, but if the program was introduced follows:

The results will be:

```
Goal : printout
Ahmed has degree 95
```

Note from the previous example :

The call by the student mark is an internal question printout is internal, in this case is not compensation and stop immediately after compensation for the solution of the relationship student, and this is normal in the language Prolog, but if the program is written as follows:

```
Printout (S,O):- student (S,D) . write (S,"has degree" , D,\ "n"
```

The results will be as follows:

```
goal : printout (x,y)
x=ahmed y=95
y=98 x=ali
```

• The order of exile Fail

Previously we mentioned that the pieces of the means which gives the user the ability to change the course of research steps and preventing continue to look for other solutions when you provide the right solution, and contains language Prolog the other way is called denial Fail, which is the way controllers obsolete research and implementation and is quite understandable to cut they lead Prolog system to continue to search for other solutions using this method is to find all the solutions, as in the following example:

```
printout :- student ( name, mark) ,
write ( name, " " , mark , "\n" ,
fail.
```

The results will be as follows:

```
goal : printout
95      ahmed
98      ali
70      saad
80      enas
```

Find a mechanism or how to get the output:

When you call the relationship student is ahmed and return values are printed by injunction writer then upon arrival to Fail injunction will be to return the value fails, the program will try again to find a new value of the relationship and the student is finding ali, and so on.

3.The Matrices

3.1 The Arrays language Pascal

Arrays Array is a set of elements is given one name represents a Arrays variable, and can be accessed to any element in the Arrays by knowing ranking (position) where.

Therefore, the arrays in Pascal is used to store a set of repeated information similar in composition and in different mass values under a single fee schedule and others. This name is called the Arrays and are conducting operations on any element using the "index", which serves as a counter value is selected for the marks to the desired item. It can determine the size of the index and the Arrays elements and arranged horizontal and vertical, the Arrays algebra are either one-dimensional and called vector vector or be two-dimensional maximum is called the Arrays , and where we might need to use more than two dimensions usually, the name of the Whole comprehensive types of matrices, which works on any number of dimensions, which is known to change array index, which is common in different programming languages the name, and the Arrays is considered a special case of the index variable.

3.1.1 The announcement of the Arrays :

Announced in the announcement of the Department of variables, like this:

```
var
Array name : array [x..y] of type ;
type: is one of the types of variables.
```

Example

```
var
```

```
x: array [1..10] of integer ;  
Data : array [5...25] of char;
```

Can declare arrays by any name as you want, also could be a global matrices or a local variable .

Suppose that we have a Arrays composed of 30 component:

```
var  
x : array [1...30] of integer;  
To insert value by appointment phrase:  
x[1]:=10;  
x[2]:=30;  
:  
:  
x[30]=5;
```

If the first element has become a value of 10, and the second element has a value of 30, and so on..

To insert values through the input phrase :

Since there was an element in the Arrays 30, and we all want to read them, it is a waste of time to read the ingredient element like this:

```
Read (x [1]) ;  
Read (x[2]);  
:  
:  
Read (x[30]) ;
```

Therefore, you must use repetition so that you read all the values in only two lines!

```
Fori:= 1 to 30 do  
Readln (x[i]);
```

The repetition will read all the values x3, x2, x1 ... to X30 .

Example: to write a program that reads 10 characters, and then print characters in versa?

```
program ex4 (input, output)  
uses wincrt;  
var  
I:integer  
x:array [1...10] of char;  
Begin  
For i:= 1to 10 do  
Read (x[i])  
For i:= 10 downto 1 do  
write (x[i]);  
End.
```

3.1.2 Two-dimensional array

Where, they appear as follows.

```
var  
x: array [1...10, 1...5] of type  
x [5,2] :=20;
```

That any fifth array and the second column is equal to a value of 20. Thus, in the three-dimensional Arrays , and the Quartet, to 100 after all the same concept. We need that in the Arrays of the second count will need to first two episodes of the first and second after second, also with the three dimensions of Arrays will need three nested loops !!.

Example: Write a program to multiply two matrices square rooms?

```
program example (input, output);  
uses wincrt;  
var  
I, j, sum: integer;  
x, a, b: array [1 ... 3, 1 ... 3] of integer;  
Begin  
For i = 1 to 3 do  
Begin  
For j = 1 to 3 do  
Read (a [I, J]);  
End.  
For i = 1 to 3 do
```

```

Begin
For j: = 1 to 3 do
Read (b [I, J]);
End.
sume: = 0;
For i: = 1 to 3 do
Begin
For j: = 1 to 3 do
x [I, J]: = sum + ((a [I, j]) * (b [I, j]));
End.
For i: = 1 to 3 do
Begin
For j: = 1 to 3 do
writeln (x [I, j]);
End;
End.
    
```

3.2 The Arrays in the C ++ language

The idea of using a collective variable under the name includes a number of elements called variable No. "Subscripted Variable" and are numbered in brackets Square brackets [] is placed between the counter values or stylus, and sometimes we call evidence Index . The use of collective stylus or the Arrays of the variable in the C ++ language and other collective book advance in the memory of all the elements, if it was followed by a fifty element, he reserves his fifty stored at least in memory Another important benefit of the variables numbered and arrays is used ascending and descending to the various elements, values and processes the order of names alphabet in texts Avatar in Arrays multiplication operations and finding the inverse Arrays and other operations

3.2.1 One-dimensional Arrays

take the following form in the C ++ language

Type-specifier array –name [size];

Starts the counter usually numbered from zero, which means that the first element of the Arrays [] a second is [1] a and so for example:

```
int a [20] ;
```

Name a, has 20 locations booked her for twenty element of the correct type and the following Arrays :

```
char name [15];
```

Arrays reserves the symbolic name five of the ten symbolic element type them .

Example: a practical introduction to calculate and print the elements of the Arrays :

An example on array

```

#include <iostream.n>
main
{
int x [5] , y[5];
int i;
for (i=0 , i<5; ++i)
{
x [i] =i;
y [i]= i*i;
cout <<"\n" << x[i] << " " << y [i] ;
}
}
    
```

3.2.2 Two-Dimensional F

Two-dimensional Arrays -like in its handling, one-dimensional array, but her enumerators (two guides 2 indexes) or Mno.an one meter rows, and columns of Alakharaadad, takes the announcement of the overall shape of the Arrays follows:

Type-specifier array –name [index1][index2];

For example, the Arrays

```
int x [2] [3]
```

It is true elements int Arrays dimensions are the number of rows = 2 columns = 3

Note that the number of rows is placed in brackets alone, as well as the preparation of the columns

Example:

An example on entering values for a tow dimension array

```

main
{
int I,j , x [2] [3] ;
}
    
```

```
for ( I=0 , i<2 , ++2)
for ( j=0 , j<3 , ++j)
x [i] [j] = (i*3) + (j+1) ;
}
```

For addresses multi-dimensional elements of the Arrays in the memory is not different from what we have stated for the Arrays of one-dimensional, so if we assume, in the previous example that element [0.0 x was] entitled 100, for example, the following elements addresses in the order mentioned above is 100, 101, 102, the elements of the first row. 103, 104, 105 of the elements of the second row.

3.3 Menus in the language Prolog

Important language features are Prolog menus on each ad must express to the question of what to know about in advance.

The groups and chains with changes or unknown length is used, which lists related to replace it known Lists.

Lists can be referred to by Albrooloc square brackets and are separated by commas elements:

Ex;

[Monday , Tuesday , Wednesday , Thursday , Friday , Saturday , Sunday].

We must distinguish between the square brackets [] which are used for menus and the tow ring brackets which are used to assemble the mediators. We can to a set of values and content such as numbers and words lists be assumed that we have the following facts.

Week day ([Monday , Tuesday , Wednesday , Thursday , Friday]).

week end ([, Saturday , Sunday].

If we want to ask about the days of work (week days) we write

?- week days (days)

to answer

Day = [Monday , Tuesday , Wednesday , Thursday , Friday]

We can also connect the mutants with menu items, for example.

? – weekend ([x,y]).

to answer are:

x= Saturday , y= Sunday

Last question requires that the list be made up of two elements weekend if we asked:

?- weekend ([x,y,z]).

We get **on** the list because the question does not match the data list.

These are some examples of facts weekends, weekdays previous

?- weekdays ([a\1]) .

A = Monday, L [Tuesday , Wednesday , Thursday , Friday].

?- weekdays ([A,B,C\L]).

A=Monday , B= Tuesday , C= Wednesday , L= [Thursday , Friday]

?-weekends ([A, B\L]).

A= Saturday , B= Sunday , L= []

brackets [] mean-zero elements, any free list.

4. Conclusions and Recommendations

After the detailed study of programming languages (Pascal, C ++, Prolog) in terms of input and output, and processing it turns out that the language of C ++ is a language preference on the languages and so it provides methods close to the concept of rights in dealing with problems. One of the important applications of the C ++

language is a "Windows" program where he wrote the program language C ++ as well as C ++ language characterized by the following advantages:

1. C ++ language small language, C ++ is used as the number of reserved words Keywords lower than those used by the famous language. Such as the Pascal language, and this is desirable in programming operations .
2. C ++ structural Structure language.The program builds a set of control sentences, which aims to give a coherent and easy to program trading sentences used transition between the lines in my Basic and Fortran .
- 3.C ++ rich Baldoal Functions, Provides C ++ language programmer, a large number of input and output functions and computational and mathematical functions, and functions for text processing avatar .
4. C ++ language synthesis, the C ++ language and the language of an incident between the high-end of the languages used instructions upscale languages .It also deals with the precise level of machine tools which leads to benefit from them in the development of software applications that need to be instructed on the level of machine language .
- 5.C ++ language is Unix System Language . Unix system writes, the latest and the most advanced computer systems running C ++ language and it is a source of strength for him.
6. C ++ language do not depend on the devices significantly. This means that you can transfer the software written by, among different computing devices for example, when the program is designed for Apple device, it can be transferred to the IBM personal computer easily.
7. language C ++ it is quick, C ++ is a quick implementation of the language in the event that the operating system is a Unix system.
8. C ++ with dynamic memory allocation for the economic system. C ++ provides a number of functions for the distribution of economic transition motor memory.
9. C ++ language flexible, C ++ language provides a large number of strong instruction, which gives the programmer of choice and movement when building programming .
10. The concept of rows, C ++ language based on the principle of rows and this principle is one of the important principles in programming entities .
11. The principle of re-use programs, C ++ language specifies the language of the programmer to take advantage of programs written previously, where software can inherit other programs making a small program .
12. The principle of multi-purpose use, As well as the fact that the language of C ++ programming language entity, it provides a means for multi-purpose use of functions and tools.

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