GIER SYSTEM LIBRARY

ALGOL Demonstration Program

A/S REGNECENTRALEN

GIER SYSTEM LIBRARY
1.4 Demonstration
A/S Regnecentralen
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Day in Week   -1-

ALGOL Demonstration Program

ABSTRACT
     The program calculates the day in week corresponding to a date
typed as Arabic og Roman numerals.

Examples:

```
D A Y  in  W E E K
type day, month, year
Arabic or Roman numerals

date: 5.11.64            5.11.1964    Thursday
date: 070363             7. 3.1963    Thursday
date: 13/3/1965          13. 5.1965   Saturday
date: 17-2-015           17. 2.  15   Tuesday
date: 24 7 0065          24. 7.  65   Friday
date: the 5th of 7th-32   5. 7.1932   Tuesday
date: iv x cmmlxv         4.10.1965   Monday
date: XXI.IX.LXV         21. 9.  65   Monday
date: GIER is Grand       1. 1. 500   Friday
```

```
DAY IN WEEK
begin integer i, i1, i2, k, space;
integer array date[1:3];
switch name:= sun, mon, tue, wed, thu, fri, sat;
integer procedure weekday(d, m, y);
integer d, m, y;
begin
   if m>2 then m := m - 3 else
   begin
     m := m + 9;
     y := y - 1
   end;
   d := (146097×(y:100)):4 + (1461×(y - 100×(y:100))):4
       + (153×m + 2):5 + d + 1721119;
   weekday := d - d:7×7 + 2
end weekday;
procedure M(s);
string s;
begin
   writetext(<<     >,s,<<day>);
   goto again
end M;
integer procedure typearab;
begin
   space := space + 1;
   typearab:= if typechar=16 then 0 else if char=0 then 16 else char
end;
integer procedure typeromer;
begin integer i;
   space := space + 1;
   i := if typechar>127 then char - 128 else char;
   typeromer := if i=57 then 1    else
                if i=21 then 5    else
                if i=23 then 10   else
                if i=35 then 50   else
                if i=51 then 100  else
                if i=52 then 500  else
                if i=36 then 1000 else 0
end typeromer;


writetext(writecr,writecr,<<D A Y  in  W E E K>,writecr,
          <<type day, month, year>, writecr,
          <<Arabic or Roman numerals>, writecr);
again: writetext(writecr,<<date: >);
       space := 0;
       for i:=0, i+1 while i1=-1 do
          begin
            i1 := typearab;
            if i1>9 then
               begin
                 if i1>127 then i1 := i1 - 128;
                 i1 := if i1=57 then 1  else
                       if i1=21 then 5  else
                       if i1=23 then 10 else -1;
                 if i1+-1 then go to roma
               end
          end;
```

```
arabia:
        for k:=1,2,3 do
            begin
                if k>1 then for i:=0,i+1 while i1>9 do i1:= typearab;
                i2 := typearab;
                date[k] := if i2>9 then i1 else i1×10 + i2
            end;
        if i2<10 then
            begin
                i1 := typearab;
                if i1>9 then date[3] := 1900 + date[3]
                else
                    begin
                        date[3] := 10×date[3] + i1;
                        i1 := typearab;
                        if i1<9 then date[3] := 10×date[3] + i1
                    end
            end
        else date[3] := 1900 + date[3];
        go to test;
roma:   for k := 1,2,3 do
            begin
                if k>1 then for i:=0, i+1 while i1=0 do i1:= typeromer;
                date[k] := i1;
                for i:=0,i+1 while i2≠0 do
                    begin
                        i2 := typeromer;
                        date[k] := date[k] + (if i2>i1 then i2 - 2×i1 else i2);
                        i1 := i2
                    end
            end;
test:   i := date[1];   k:= date[2];   i1:= date[3];
        for i2:= 1 step 1 until 20-space do writechar(0);
        write(⟨nd⟩,i,writechar(59),k,writechar(59),
            write(⟨nddd⟩,i1));
        if k<1∨k>12∨i<1∨i>31
            ∨i>30∧(k=4∨k=6∨k=9∨k=11)
            ∨k=2∧(i>29∨i>28∧¬,(i1:400=i1/400∨i1:100≠i1/100∧i1:4=i1/4)) then
                begin
                    writetext(⟨<    ⟩,
                            if k<1∨k>12 then ⟨<Sorry, no such month⟩
                            else if k=2∧i=29 then ⟨<This is not a leap-year⟩
                            else ⟨<Your day is unheard of⟩);
                    goto again
                end;
        go to name[weekday(i,k,i1)];
sun: M(⟨<Sun⟩);   mon: M(⟨<Mon⟩);   tue: M(⟨<Tues⟩);
wed: M(⟨<Wednes⟩);   thu: M(⟨<Thurs⟩);    fri: M(⟨<Fri⟩);
sat: M(⟨<Satur⟩)
end program for day in week;
```