

수치해석 과제1

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1. FORTRAN CODE :

```
logical is_palindromic
logical is_prime, is_palind

lim = 94444
j = 11
do k = j, lim, 2
    lsq = sqrt(float(k)) + 0.001
    is_prime = .true.
    i = 3
    do while (is_prime .and. i <= lsq)
        if(mod(k, i) == 0) is_prime = .false.
        i = i + 2
    enddo
    if(is_prime) then
        is_palind = is_palindromic(k)
        if(is_palind) write(*, *) k, 'is a palindromic prime number'
    endif
enddo

stop
end

logical function is_palindromic(k)
integer digits(10)

j = log10(float(k)) + 1
l = 10
ks = k
digits(j) = mod(k, l)
do n = j-1, 1, -1
    ks = ks/10
    digits(n) = mod(ks, 10)
```

```
enddo
```

```
jh = j/2
```

```
i = 1
```

```
is_palindromic = .true.
```

```
do while (is_palindromic .and. i <= jh)
```

```
    if(digits(i) .ne. digits(j-i+1)) is_palindromic = .false.
```

```
    i = i + 1
```

```
enddo
```

```
return
```

```
end
```

```
! first output 11
```

```
! last number 929 Total 16 numbers
```

OUTPUT :

```
11 is a palindromic prime number
101 is a palindromic prime number
131 is a palindromic prime number
151 is a palindromic prime number
181 is a palindromic prime number
191 is a palindromic prime number
313 is a palindromic prime number
353 is a palindromic prime number
373 is a palindromic prime number
383 is a palindromic prime number
727 is a palindromic prime number
757 is a palindromic prime number
787 is a palindromic prime number
797 is a palindromic prime number
919 is a palindromic prime number
929 is a palindromic prime number
10301 is a palindromic prime number
10501 is a palindromic prime number
10601 is a palindromic prime number
11311 is a palindromic prime number
11411 is a palindromic prime number
12421 is a palindromic prime number
```

12721 is a palindromic prime number
12821 is a palindromic prime number
13331 is a palindromic prime number
13831 is a palindromic prime number
13931 is a palindromic prime number
14341 is a palindromic prime number
14741 is a palindromic prime number
15451 is a palindromic prime number
15551 is a palindromic prime number
16061 is a palindromic prime number
16361 is a palindromic prime number
16561 is a palindromic prime number
16661 is a palindromic prime number
17471 is a palindromic prime number
17971 is a palindromic prime number
18181 is a palindromic prime number
18481 is a palindromic prime number
19391 is a palindromic prime number
19891 is a palindromic prime number
19991 is a palindromic prime number
30103 is a palindromic prime number
30203 is a palindromic prime number
30403 is a palindromic prime number
30703 is a palindromic prime number
30803 is a palindromic prime number
31013 is a palindromic prime number
31513 is a palindromic prime number
32323 is a palindromic prime number
32423 is a palindromic prime number
33533 is a palindromic prime number
34543 is a palindromic prime number
34843 is a palindromic prime number
35053 is a palindromic prime number
35153 is a palindromic prime number
35353 is a palindromic prime number
35753 is a palindromic prime number
36263 is a palindromic prime number
36563 is a palindromic prime number
37273 is a palindromic prime number
37573 is a palindromic prime number
38083 is a palindromic prime number

38183 is a palindromic prime number
38783 is a palindromic prime number
39293 is a palindromic prime number
70207 is a palindromic prime number
70507 is a palindromic prime number
70607 is a palindromic prime number
71317 is a palindromic prime number
71917 is a palindromic prime number
72227 is a palindromic prime number
72727 is a palindromic prime number
73037 is a palindromic prime number
73237 is a palindromic prime number
73637 is a palindromic prime number
74047 is a palindromic prime number
74747 is a palindromic prime number
75557 is a palindromic prime number
76367 is a palindromic prime number
76667 is a palindromic prime number
77377 is a palindromic prime number
77477 is a palindromic prime number
77977 is a palindromic prime number
78487 is a palindromic prime number
78787 is a palindromic prime number
78887 is a palindromic prime number
79397 is a palindromic prime number
79697 is a palindromic prime number
79997 is a palindromic prime number
90709 is a palindromic prime number
91019 is a palindromic prime number
93139 is a palindromic prime number
93239 is a palindromic prime number
93739 is a palindromic prime number
94049 is a palindromic prime number
94349 is a palindromic prime number

2. FORTRAN CODE :

```
real*8 function Alnorm(A, M, N)  
dimension A(M, *)
```

```
rmax = -1.  
do j = 1, N  
  sum = 0.  
  do i = 1, M  
    sum = sum + abs(A(i,j))  
  enddo  
  if(sum > rmax) rmax = sum  
enddo  
  
Alnorm = rmax  
  
return  
end
```