PSEUDOCODE

SISTEM ANALISIS TREN NILAI MAHASISWA PER SEMESTER

Deklarasi

```
nama : array [1..100] of string
nim : array [1..100] of string
jumlahSemester : array [1..100] of integer
ipk : array [1..100, 1..8] of real
rataRata : array [1..100] of real
tren : array [1..100] of string

jumlahMahasiswa : integer

pilihMenu : integer
namaDicari : string
i, j : integer
sum : real
naik, turun, tetap : integer
tempNama, tempNim, tempTren : string
tempRata : real
tempSem : integer
tempIPK : array [1..8] of real
```

Deskripsi

```
start
jumlahMahasiswa ← 0

repeat
   write("1. Input data mahasiswa")
   write("2. Tampilkan semua data")
   write("3. Cari mahasiswa")
   write("4. Sorting berdasarkan rata-rata IPK")
   write("5. Keluar")
   read(pilihMenu)

   if pilihMenu = 1 then
      jumlahMahasiswa ← jumlahMahasiswa + 1

      write("Masukkan nama: ")
      read(nama[jumlahMahasiswa])

      write("Masukkan NIM: ")
      read(nim[jumlahMahasiswa])

      write("Jumlah semester: ")
      read(jumlahSemester[jumlahMahasiswa])

      for i ← 1 to jumlahSemester[jumlahMahasiswa] do
         write("IPK Semester ", i, ": ")
```

```
        read(ipk[jumlahMahasiswa, i])
    endfor

    sum ← 0
    for i ← 1 to jumlahSemester[jumlahMahasiswa] do
        sum ← sum + ipk[jumlahMahasiswa, i]
    endfor
    rataRata[jumlahMahasiswa] ← sum / jumlahSemester[jumlahMahasiswa]

    naik ← 0; turun ← 0; tetap ← 0
    for i ← 1 to jumlahSemester[jumlahMahasiswa] - 1 do
        if ipk[jumlahMahasiswa, i+1] > ipk[jumlahMahasiswa, i] then
            naik ← naik + 1
        else if ipk[jumlahMahasiswa, i+1] < ipk[jumlahMahasiswa, i] then
            turun ← turun + 1
        else
            tetap ← tetap + 1
        endif
    endfor

    if tetap = jumlahSemester[jumlahMahhasiswa] - 1 then
        tren[jumlahMahasiswa] ← "Stabil"
    else if naik > 0 and turun = 0 then
        tren[jumlahMahasiswa] ← "Naik"
    else if turun > 0 and naik = 0 then
        tren[jumlahMahasiswa] ← "Turun"
    else
        tren[jumlahMahasiswa] ← "Fluktuatif"
    endif
endif

if pilihMenu = 2 then
    for i ← 1 to jumlahMahasiswa do
        write("Nama : ", nama[i])
        write("NIM  : ", nim[i])
        write("IPK  : ")
        for j ← 1 to jumlahSemester[i] do
            write(ipk[i, j], " ")
        endfor
        write("Rata-rata : ", rataRata[i])
        write("Tren      : ", tren[i])
        write("-------------------------")
    endfor
endif

if pilihMenu = 3 then
    write("Masukkan nama yang dicari: ")
    read(namaDicari)

    found ← 0
```

```
    for i ← 1 to jumlahMahasiswa do
        if namaDicari = nama[i] then
            found ← i
        endif
    endfor

    if found ≠ 0 then
        write("Nama: ", nama[found])
        write("NIM : ", nim[found])
        write("IPK : ")
        for j ← 1 to jumlahSemester[found] do
            write(ipk[found, j], " ")
        endfor
    else
        write("Data tidak ditemukan")
    endif
endif

if pilihMenu = 4 then
    for i ← 1 to jumlahMahasiswa - 1 do
        for j ← 1 to jumlahMahasiswa - i do
            if rataRata[j] < rataRata[j+1] then
                tempNama ← nama[j]
                nama[j] ← nama[j+1]
                nama[j+1] ← tempNama

                tempNim ← nim[j]
                nim[j] ← nim[j+1]
                nim[j+1] ← tempNim

                tempRata ← rataRata[j]
                rataRata[j] ← rataRata[j+1]
                rataRata[j+1] ← tempRata

                tempTren ← tren[j]
                tren[j] ← tren[j+1]
                tren[j+1] ← tempTren

                tempSem ← jumlahSemester[j]
                jumlahSemester[j] ← jumlahSemester[j+1]
                jumlahSemester[j+1] ← tempSem

                for k ← 1 to 8 do
                    tempIPK[k] ← ipk[j, k]
                    ipk[j, k] ← ipk[j+1, k]
                    ipk[j+1, k] ← tempIPK[k]
                endfor
            endif
        endfor
    endfor
```

```
        write("Sorting selesai.")
    endif

until pilihMenu = 5

end
```