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# Using task to launch independent processes
# The processes will do a countdown with a random delay
#
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defmodule Concur do
  @moduledoc """
  Functions to work with concurrent tasks
  """

  def prime(num) when num == 2 do #Number 2 is the first prime so we're
adding a condition here
    boolL = true
  end

  def prime(num) do
    topLim = :math.sqrt(num) #Make the top limit the sqrt(num)
    topLim = round(topLim) #Round answer to create a list with bottom limit
and top limit
    listS = Enum.to_list(2..topLim) #Create a list with the limits per
number
    boolL = for x <- listS do #Check if the num is prime or not and make a
list
      if x < 2 do #If num is less than two return false
        false
      else if rem(num, x) == 0 do #Check if the number is divisible by "x"
number inside the range
        false #if the num is divisible by"x" we add a false to the list
      else
        true #Else we add a true to the list
      end
    end
  end
end

    if Enum.member?(boolL, false) do #Check if the previous list indicates
if "num" could be divided by a numer
      res = false #If it has a false then the number isn't prime
    else
      res = true #Else the number is prime
    end

  end
end

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def findPrime(number) do #Recieves a number and returns the sum of the
prime numbers lower than it
  lista = Enum.to_list(1..number-1)#Creates a list from 1 to "number - 1"
  numPrimos = for x <- lista do #Creates a list and makes iterates through
the members of "lista"
    if prime(x) do #Calls the function prime for each member
      x
    else
      0
    end
  end
  sumaTot = Enum.sum(numPrimos)
end

def primeP(bottomL, topL) do #Recieves a bottom limit and a top limit
  lista = Enum.to_list(bottomL..topL-1) #Creates a list from the bottom
limit to the top limit
  numPrimos = for x <- lista do #Creates a list and makes iterates through
the members of "lista"
    if prime(x) do #Calls the function prime for each member
      x #If it's a prime number we add it to the list
    else #We don't add anything to the list
      0
    end
  end
  sumaTot = Enum.sum(numPrimos) #Add all the prime numbers and return them
end

def parallelP(number) do # Recieves a number and returns the sum of the
prime numbers lower than it
  cores = 8 #How many cores we're working with
  coresL = Enum.to_list(1..cores) #Makes a list of [1,..,8]
  block = div(number, cores) #Creates a block

  bottomL = for y <- coresL do #The bottom limit of each block
    (y - 1) * block
  end

  topL = for x <- coresL do #The top limit of each block
    if x == cores do
      number
    else
      (block * x)
    end
  end
end

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end

result = 1..cores
  |> Enum.map(&Task.async(fn -> primeP(Enum.at(bottomL, (&1 - 1)),
Enum.at(topL, (&1 - 1))) end)) #We call the parallel prime function
  |> Enum.map(&Task.await(&1, 50000)) #Wait for each tasks to end
  |> Enum.sum() #Sum all the results to get the total

end

end
```