```matlab
clc;
clear;
close all;

digitsDesired = 3; %%%enter digits here!
primesUpToDigit(digitsDesired) %%%call it here!!!

function [primes] = primesUpToDigit(digits)
    maxNum = 10^digits - 1; %for example, if want 3 digits, then get 10^3 -1 =
 1000 -1 = 999, the largest 3 digit numbner
    primes = [2,3]; %will get populated as the loop progresses
    startNumber = primes(end)+1; %will start collecting at the end of the
 primes list + 1, so in this case, at 3+1=4

    for i = startNumber:maxNum
        for ii = 1:length(primes)
            if mod(i,primes(ii)) == 0 %modulo to check for remainders of
 dividing i by primes(ii)
                %if remainder is 0, then that number is divisible, so break
                %loop, and skip this number
                break
            end
        end
        %if it reached the end of the list without breaking loop (for ii),
 then
        %that number was not found to be divisible by anything, so its prime
        %this works because you keep adding more and more numbers to the list,
        %so bigger numbers have more factors to check against
        if ii == length(primes)
            primes(end+1) = i;
        end
    end
    primes
end
```

primes =

  Columns 1 through 13

     2   3   5   7   11   13   17   19   23   29   31   37   41

  Columns 14 through 26

    43   47   53   59   61   67   71   73   79   83   89   97   101

  Columns 27 through 39

   103   107   109   113   127   131   137   139   149   151   157   163   167

  Columns 40 through 52

```
 173   179   181   191   193   197   199   211   223   227   229   233   239
```

```
 241   251   257   263   269   271   277   281   283   293   307   311   313
```

```
 317   331   337   347   349   353   359   367   373   379   383   389   397
```

```
 401   409   419   421   431   433   439   443   449   457   461   463   467
```

```
 479   487   491   499   503   509   521   523   541   547   557   563   569
```

```
 571   577   587   593   599   601   607   613   617   619   631   641   643
```

```
 647   653   659   661   673   677   683   691   701   709   719   727   733
```

```
 739   743   751   757   761   769   773   787   797   809   811   821   823
```

```
 827   829   839   853   857   859   863   877   881   883   887   907   911
```

```
 919   929   937   941   947   953   967   971   977   983   991   997
```

ans =

```
   2     3     5     7    11    13    17    19    23    29    31    37    41
```

```
  43    47    53    59    61    67    71    73    79    83    89    97   101
```

```
 103   107   109   113   127   131   137   139   149   151   157   163   167
```

```
   173    179    181    191    193    197    199    211    223    227    229    233    239

Columns 53 through 65

   241    251    257    263    269    271    277    281    283    293    307    311    313

Columns 66 through 78

   317    331    337    347    349    353    359    367    373    379    383    389    397

Columns 79 through 91

   401    409    419    421    431    433    439    443    449    457    461    463    467

Columns 92 through 104

   479    487    491    499    503    509    521    523    541    547    557    563    569

Columns 105 through 117

   571    577    587    593    599    601    607    613    617    619    631    641    643

Columns 118 through 130

   647    653    659    661    673    677    683    691    701    709    719    727    733

Columns 131 through 143

   739    743    751    757    761    769    773    787    797    809    811    821    823

Columns 144 through 156

   827    829    839    853    857    859    863    877    881    883    887    907    911

Columns 157 through 168

   919    929    937    941    947    953    967    971    977    983    991    997
```

Published with MATLAB® R2022b