Mathematical Foundations of Computer Science
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Some Big Fibonacci Numbers

$$
\begin{aligned}
F_{9677} = {} & 10565977873308861656072833763357729479120040361125645798743753527595944392457501150256617516357718584986040635382499191505219101434089745828\\
& 29038241321765899686974372065892543538158617334073268472725275364083905833609186070912661512269116100758775431451837305406774829615930445817\\
& 60732615068565879531586711169326482373200483965666457523711128817909923244046629843158210452708553287703154960396488410169195658516335585159\\
& 11423279807446243301878790648553047987557716867970515470079477718823729526678934271436902243810677802914882915258441073230342319674534696073\\
& 89798265139480514915570754010362634536063309050925069684058402883158793747384557423242752292859137029927002634958591300831686286270148295738\\
& 14164226518515947409237407172783522787909333772121897096004511446717952125658282085764447893961587269325976762505165678443632053621488809924\\
& 69709352024778407940200018048249340943229426473132450154641462354103816909567885032645614056181741431685587944855905936219050748434454698615\\
& 25661965245856307816345300556329589695975628440616169746340959867964538987362157854244708043842221402221963277716301052548247805899502717820\\
& 05203307225531307165758688424082168110097694099873667232211354736647812607886111951361904437069608336082860180992488471757551982113395649211\\
& 44714030286985471364657058287892194773112377933256739062417740085412063517137807422012852658695334528240005246734404228893278003283623355475\\
& 19511501666197619108063285902418799306753187272256356221431103854880105596403020095508495581348319107302916061047962850483220408241536724453\\
& 57264513643468751027870799928152617137552562595568776239891076011347108694769329084944328439613846369487730397277862891300268053145113543905\\
& 82309385083076442826282224402069037253188972361577201640308654457901511491512269954396171770192346058842441982671364532811884245406494975736\\
& 44414770526808655328967088370380579677911448765589873573311772376689968432217235625731351030824652263016860210144187956704470629348157475577\\
& 78065513384231269087882519334223599104933599516979250455067035 7
\end{aligned}
$$

The number F_{9677} has 2023 digits. Its index, 9677, is prime and F_{9677} is also prime!

$$F_{2971} = 357103560641909860720907774139063454445569926582843306794041997476301071102767570483343563518510007800304195444080518562630900027386498933944619210192856768352683468831754423234217978525765921040747291316681576556861490773135214861782877716560879686368266117365351884926393775431925116896322341130075880287169244980698837941931247516010101631704349963583400361910809925847721300802741705519412306522941202429437928826033885416656967971559902743150263252229456298992263008126719589203430407385228230361628494860172129702271172926469500802342608722006420745586297267929052509059154340968348509580552307148642001438470316229$$

The number F_{2971} has 621 digits. Its index, 2971, is prime and F_{2971} is also prime!

The largest prime Fibonacci preceding F_{2971} is F_{571}:

$$F_{1024} = 450669963367781981310438323572888604936786059621860483080302314960003064570872139624879260914103039624487326658034501121953020936742558101987106764609420026228520234665586889971108924677841335400410363155392540 5243$$

The number F_{1024} has 214 digits.

$$F_{1000} = 434665576869374564356885276750406258025646605173717804024817290895365554179490518904038798400792551692959225930803226347752096896232398733224711616429964409065331879382989696499285160037044761377951668492288 75$$

The number F_{1000} has 209 digits.

$$F_{571} = 960412006189225538239428833609248650261049174118770678168222647890290143783084788641925890841852543316376461830080746 29$$

As we said earlier, F_{571} is prime (and 571 is prime). This number has 119 digits.

$$F_{569} = 366844743160809780614736136462756304511005869011952298152702428684177680611935608579043350178795405152281437777810658 69$$

The number F_{569} is prime (and 569 is prime). This number also has 119 digits.

$$F_{512} = 44893845313309942978077298160660626646181883623886239791269694466661322268805744081870933775586567858979269$$

This number has 107 digits.

$$F_{509} = 10597999265301490732599643671505003412515860435409421932560009680142974347195483140293254396195769876129909$$

The number F_{509} is prime (and 509 is prime). This number also has 107 digits.

$$F_{449} = 30617199924845450305543138480837172081112854323537384971316747993215712381490159334428056659 49$$

The number F_{449} is prime (and 449 is prime). This number has 94 digits.

$$F_{300} = 22223224462942044552973989346190996720666693909649976499097960 0$$

This number has 63 digits.

$$F_{131} = 106634041749171059581457216 9$$

The number F_{131} is prime (and 131 is prime). This number has 28 digits.

$$F_{128} = 25172882568354948815042426 1$$

This number has 27 digits.

$$F_{100} = 354224848179261915075$$

This number has 21 digits.

$$F_{83} = 99194853094755497$$

The number F_{83} is prime (and 83 is prime). This number has 17 digits.

$$F_{45} = 1134903170$$

This number has 10 digits.

$$F_{40} = 102334155$$

This number has 9 digits.