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More great reads inside:

Sioux Falls, South Dakota

In the past several months, many of you have been working on Project XXX and on Project XXX. Both projects are for a customer located in Sioux Falls, South Dakota. With a few teammates traveling to Sioux Falls in MONTH and with the likely chance that support calls will be scheduled after Phase X XXX, knowing a little about Sioux Falls, could be useful.

Sioux Falls is the most populous city in the state of South Dakota, with ~ 265,000 in the metropolitan area, which is 29% of the state's population. Sioux Falls has a rich Native American history with the main draw being the Big Sioux River (and Sioux Falls) which runs through the middle of the town. Largest employers in the area are mainly banking and insurance as well as healthcare – Wells Fargo, Citigroup, Sanford Health, and Avera. Religiously speaking the majority of the population are Lutherans, with Roman Catholics being a close second.

Weather…in March the low is 23 and the high is 43 (°F). June has a low of 57 and high of 80. August has a low of 60 and high of 83. the Pic above shows the Falls at the end of January, 2020 – burr.

Illumina and PacBio Deal Falls Through

In November 2018, Illumina announced the acquisition of PacBio Biosciences for $1.2 billion in cash (or $8/share). There are many reasons why Illumina would acquire PacBio. Most importantly, realize that most NGS labs use both Illumina and PacBio sequencers and therefore they share the same customer base. Illumina offers solutions for short-read technology, while PacBio has expertise in the long-read space.

To describe this in the simplest way, let's compare this to photography. You know when you take a photo with the lowest resolution and you zoom-in on the image? The image is pixelated because the image quality is not great. This is similar to the resolution of a short-read using an Illumina sequencer. That's not entirely bad. The area of research you may be studying may in fact only require small regions of the genome. However, many research studies like to begin with a reference genome and for that, they like to use PacBio, or long-read sequencing. Essentially, this is the high resolution image that can be magnified and no pixilation exists.

In genomic research, a reference genome is used to establish the encyclopedia of an organism and then, smaller segments of the DNA of that organism are studied. The reference genome is generated using long-read sequencers, i.e. PacBio sequencers. The smaller segments are typically generated using short-read sequencers, i.e. Illumina sequencers.

Now, back to the acquisition news. Illumina announced the buy-out in November, but in June, 2019, the UK's Competition and Markets Authority (CMA) started heavy investigations on its concern that the buy-out would create an unfair monopoly in the UK. The original acquisition of PacBio was supposed to be completed by mid-2019. Because of the delay in fair trade approvals, Illumina extended the acquisition date and started paying PacBio monthly payments in the amount of $6 million per month starting in Oct, 2019. Illumina attempted to expose their Intellectual Property portfolio to competitors to appease the monopoly concerns, but that did little to sway the trade hurdles. Finally, on Dec 17, 2019, the United States Fair Trade Commission (FTC) announced its filing of an administrative complaint that Illumina was seeking to unlawfully maintain a monopoly in the NGS market with the acquisition of PacBio. With this final blow, Illumina cancelled the acquisition. The cost to Illumina to cancel the deal - $98 million termination fee + $34 million in continuation payments + $18 million in previously paid monthly payments for a grand total of $150 million.

(Above) PacBio Sequel II Sequencer, launched in 2019. Its predecessor was the Sequel and before the Sequel was the RS II.

(Left) Giving you a reference to the size, the PacBio RS II was massive. The Sequel II is as tall as a person, so the RS II is significantly larger.

(Above) Illumina's NovaSeq and NextSeq are significantly smaller than the PacBio systems in terms of size.

(Right) NextSeq