

HOW
MUCH
DID YOU
PAY FOR
TEXTBOOKS?

IF
INFORMATION
HAS A
PRICE,
WHO'S
PAYING?

WHY DO
OTHERS
HAVE
ACCESS TO
INFORMATION
AND I
DON'T?

IS
KNOWLEDGE
POWER
FOR SOME
OR
FOR ALL?

DOES
INFORMATION
BELONG TO
EVERYONE?

IS
INFORMATION
REALLY
FREE?

WHAT
DOES
OPEN
MEAN?

OPEN EVERYTHING

Information is a commodity.

Just like any other commodity, it can be bought and sold. Quality information costs time and money to produce, and those who produce it often limit access to recover cost and make a profit.

Information is also a public good.

Producing information will always come at a price, but limiting access to it can impede the advancement of knowledge, slows down innovation, and stunts scientific and social progress.

Open information can change this.

Open information is any information--journals, books, data, software--that is free to use, re-use and share with attribution. Open information is disseminated faster and to a wider audience and is used and re-used more often. It encourages global participation in the pursuit of new knowledge.

Here in the library we're particularly passionate about Open Access--unrestricted online access to peer-reviewed scholarly content. But we're also really excited about the wider 'open' movement.

OPEN EVERYTHING encourages you to explore the power of Open Access, Open Data, Open Textbooks, and Open Software, and to contemplate the tension between information as commodity and information as public good.

OPEN ACCESS



Open Access is the free, online availability of research articles and the rights to use them.

Imagine you recently lost a family friend to a very common cancer that is difficult to detect. Because of this experience, you decide you'd like to investigate early diagnostic tools for an upcoming science fair project. You scour the Internet looking for relevant medical research. Some studies are freely available but others cost as much as \$40 per article to access.

YOUR CHOICES

With the additional information, you are able to gain a deeper understanding of the science and, as a result, strengthen your project.

You complete the project but are still left with many unanswered questions.

TRUE STORY

When he was just a sophomore in high school, Jack Andraka used his science fair project as an opportunity to investigate a new diagnostic tool for pancreatic cancer, a hard-to-detect cancer that recently claimed the life of a close family friend. Andraka relied heavily on freely available, open access medical research. But he also found that many other important research articles cost upwards of \$40 to access. After many hours in the lab, his research paid off. Andraka developed an innovative and affordable method for detecting pancreatic cancer. The same method is now being used to develop diagnostic tools for ovarian cancer and lung cancer.

OPEN TEXTBOOKS



Open textbooks— and other open education resources— are teaching and learning materials freely available online for everyone to use.

Imagine you are a professor who has developed a new method of teaching calculus. You believe this ground-breaking method really has the potential to change the way calculus classes are taught across the country and even the world. The problem is how to get this information out there to teachers and students.

YOUR CHOICES

Your textbook earns you some money. It reaches an audience who can afford it, but it doesn't gain the worldwide audience you were hoping for.

Your open access textbook is downloaded 3 million times by users globally. Teachers from Southeast Asia to sub-Saharan Africa are now using your method to teach calculus.

TRUE STORY

Charles Lowe, a GVSU Writing professor, wanted to create a textbook that could be used and adapted freely by instructors and students anywhere. He and his collaborators created, "Writing Spaces: Readings on Writing (vol. 1)" and made it an open education resource. This textbook has been posted online in several venues for users to download for free, including our library's ScholarWorks@GVSU collection from where it has been downloaded over 12,000 times!

OPEN DATA



Open Data is data that can be freely used and shared by anyone.

Imagine you are a biologist studying the human genome. You get asked to join the Human Genome Project, an attempt to map all the genes of the human genome. It sounds intriguing, but you're worried about intellectual property. The publicly funded HGP would require that all data collected be made freely available. That's privileged information you were hoping to patent—it could lead to some extra money for you and your lab!

YOUR CHOICES

Due to the collective efforts of all the scientists, the project is completed ahead of schedule. The publicly available data has a positive impact in the scientific sphere and beyond, including genetic tests for the general public that can show a predisposition to a variety of illnesses.

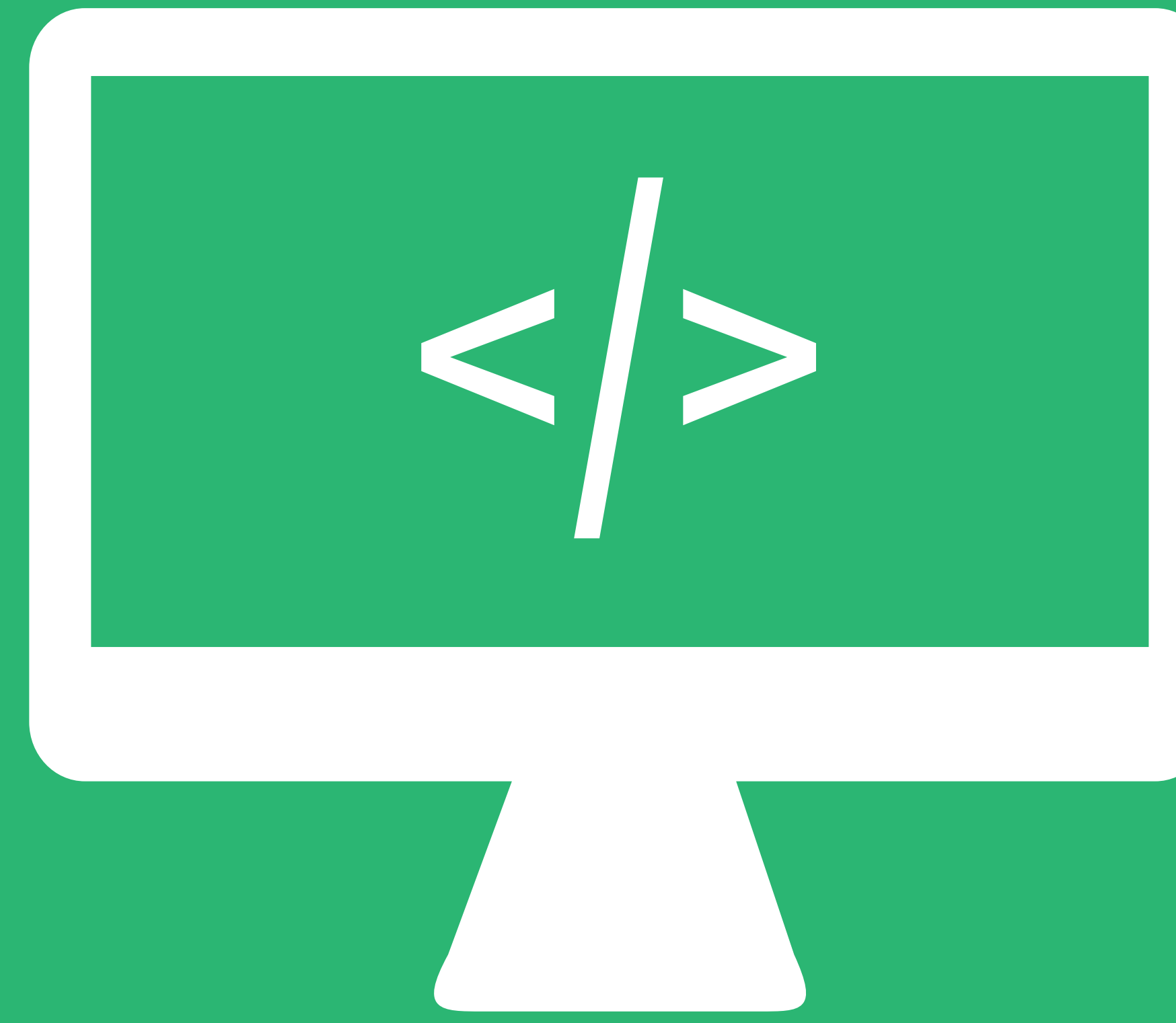
You continue to work independently. You get some money for your lab and gain some recognition in a small circle of biologists. However, your patent applications are rejected when the government announces that the human genome sequence cannot be patented.

TRUE STORY

The publicly funded HGP, whose goal was to determine the sequence of chemical base pairs that make up human DNA, and to identify and map all of the genes of the human genome from both a physical and functional standpoint, was declared complete in 2003. It remains the world's largest collaborative biological project, with participants from universities and research centers in China, France, Germany, Japan, Spain, the United Kingdom, and the United States.

The data generated by this project is available online for free, and has been used to create genetic tests that can show a predisposition to illnesses like breast cancer, hemostasis disorders, cystic fibrosis, and liver diseases, among others.

OPEN SOFTWARE



Open source software is available for modification or enhancement by anyone.

Imagine you are an undergraduate student majoring in computer science. You're frustrated by the limitations of the software that your professor is having you use in class, so you decide to create your own program that is better than what's currently available.

YOUR CHOICES

A small group of users adopt your program, but after 5 years it's no longer in use.

Your software is still in use today and many variations have been created for different uses. Plus, a large community exists to support the software.

TRUE STORY

Linus Torvalds was a student at the University of Helsinki in 1991 when he became frustrated by the expense and limitations of the operating systems at the time. So he decided to create his own operating system. He chose to make the software available for free so that he could incorporate the work of other programmers, who required open sharing. That software, Linux, now runs everything from your Android smartphone to the International Space Station to 95% of the world's 500 fastest super computers. There are many versions of Linux available because his open license allows users to modify it to meet their needs.

MORE RESOURCES

Right to Research Coalition

righttoresearch.org

Open Access

sparc.arl.org/issues/open-access

Open Source

opensource.org

Open Education

sparc.arl.org/issues/oer

Open Data

sparc.arl.org/issues/open-data

Open Access Explained

gvsu.edu/s/Gd

With what money you have, you purchase the other articles.

You don't have extra money to spend, so you rely on the limited amount of information that is freely available online.

Work with a big time publisher who does the majority of the work to produce and sell your method in a textbook within a matter of months and give you a share of the profits from selling it.

Take a year off from work to create an online textbook on your own that would be available to anyone, free of charge.

With what money you have, you purchase the other articles.

You don't have extra money to spend, so you rely on the limited amount of information that is freely available online.

Charge users a small fee for downloading and using your software.

Share the software freely and allow other users to modify the program to meet their needs.