The topic of lecture four is intellectual property. The lecturer discussed it from three aspects: different types of intellectual property, patents, and software patents. First, intellectual property was defined as a protection for people’s mental property.

**Different types of intellectual property**

Next, the lecturer talked about different types of intellectual property in terms of what they protect, how long they can protect, how to acquire and how they are enforced. A common intellectual property is patent, which protects functionality instead of appearance. A patent can be held at most for 20 years. To apply to a patent, it is necessary to provide proof of the functionality which is novel and applied is necessary. By contrast, a design protects the look of a product rather than its use. The duration of a design is range from 10 years to 25 years. A design must be unique and different from others. In addition, trade marks are invented for the reputations of brands, which are often represented as distinguishable signs. A trade mark can be used as long as the holder wants. Like design, a trade mark is considered to be infringed when there exists a similar trade mark. Copyright is another kind of intellectual property that provides protection to newborn thoughts and ideas. It can last until 70 years after the inventor’s death. Unlike other intellectual property, copyright does not require an application. It is difficult to determine an infringement of copyright which needs to determine whether the core part of the original work is copied. The last one is trade secret. As its name, trade secret protect commercial secret information for as long time as the owner wants.

**Patents**

**Why patents**

Then the lecture focused on why we have patents. In general, patents protect the inventor’s rights and encourage people to teach the world new things. Patent works like a legal agreement between inventors and the government that prevent someone else from making money with their inventions. It is financial support to inventors. To society, this financial insurance to researchers encourages them to publish their findings to benefit society. As the lawmaker, the government is responsible to keep the rights of patents and reach to an agreement with other countries and institutions on intellectual property. Additionally, the inventor with patents protected use patents as swords and shields, such as claiming to cease and desist and deterring competitors.

**Who owns a patent**

In terms of ownership problem, usually the rights of patent belong to the inventor except the inventor assign the power to others. However, patents can belong to employers or institutions if the researchers have findings under their employment or assistance. Sometimes ownership of patents can be tricky, it depends on how many sources from the employer the inventor uses on the invention.

**What can be patented and what is worth patenting**

Application to patents need proof of the novelty of the function of the invention. Another concern is what is worth patenting. In terms of commercial purpose, the inventor should consider can invention make enough profit to afford the cost of obtaining and enforce patent right. Apart from that, applying for patent may be a bad strategy. This is related to the attraction of capital, competitors, lifespan of the invention and so on. For instance, it will be difficult for an inventor of an encryption algorithm to determine whether others are using his algorithm.

**Software patent**

The last part of the lecture is software patents. Except for the conditions mentioned above, software patents should also be eligible subject matter, which is defined in law. Whether to count computer applications on business as a part of computer implemented inventions or having legislative exclusion differs from country to country. The key point of the two types of invention is whether technical innovation or improvement exist. Any findings without technical advantages may not be called software patents. At last, the lecturer showed some examples of software patents, such as PageRank and RSA.

The topic for lecture five is legal perspectives on the software industry in a ‘surveillance economy’. The first part of the lecture discussed law and ethics, while the second part of the lecture talked about data surveillance and privacy.

**Law**

Human law is made with considerations of all kinds of interests and various reality situations. It is changeable and sometimes it is regarded as the public standard of morals. Legal system can be mainly categorized into criminal law and civil law. The most common source of law is statutes and precedents. Besides, the law can also follow specific courts, terms and contracts and codes. There is no definite correctness in the legal system, judgements are made by argument. Apart from that, legal authorizations consist of three parts: executive, which is the government, legislature, which is parliament, and judiciary, which is courts. The government is powered by law, but also limited by law. Law is amended and revised in parliament. Judiciary is where the public solves judicial cases. To sum up, no one can get rid of the restriction of law. The power is distributed to three institutions. On the other hand, the law is not fixed. Law can be changed when the majority agree with it.

**Natural justice**

Natural justice is the right to justify yourself when the case is against you. On one hand, you can claim innocence for yourself by evidence and logical analysis. On the other hand, the adjudicator should be unbiased. The decision should be made based on evidence and rules. When it comes to technology, there is no natural justice for users. Users are not familiar with terms or user data, so they are unlikely to justify for themselves. Besides, users cannot know the criteria and exist of bias behind the decisions.

**Risk and profession**

Then the lecturer briefly discussed risk as a factor in design and operations. Risk evaluation is used to avoid common big failures in IT. With the idea of risk, problems can be detected in the early stage. Additionally, risk consideration can help with testing software iteratively. When judging a case, risk determination is helpful to explain intention and motivation. There are a lot of IT failure cases where risk and responsibility had not been thought ahead. The next topic is data integrity professional. In terms of data privacy, it is significant to be professional. Profession means certification from institutions and self-regulation.

**Data surveillance**

People should care about data surveillance One of the reasons is the projections of risks onto data subjects. Besides, it can bring different scales of negative effects. Furthermore, might cause a “chilling effect” and restrict people’s behaviours. Also, people can be manipulated by data. Apart from that, we should not underestimate or pre-judge data surveillance. Evidence is significant when analyzing the problem. There might be surveillance with good intention and proper scope. In terms of privacy, it is the right for everyone to keep secrets. Privacy became limited after the advent of data subjects. The boundary became ambiguous, and the law is difficult to enforce. Meanwhile, different country has different definition of personal information. Using personal information without notices can do harm to people, even though it is used unintended. For example, the original OECD privacy rules allowed people to use personal data for some use, which brought potential issues.