1. Provide an illustration on the advancement of computing over the last 2 decades.

* Computers have evolved and advanced significantly over the decades since they originated, New computer technology has enabled more advanced business tasks as well. For example, prior to the last 2 decades, marketing was basically done through prints media (Newspapers, Handbills), Radio & Television. Now with the advancement of computing over the last 2 decades, marketing are done digitally, campaigns can be done on various social media platforms (Facebook, Twitter, Instagram etc), and it is a lot cheaper compared to prints media, it reaches a wider coverage, it can also be streamlined to a particular/target audience.

2. What is the difference between R and Python.

* Python

Python, which is also called the Swiss army knife of coding, is a general-purpose, high-level programming language which focuses on versatility and cleaner programming. It is easy-to-use and makes replicability and accessibility easier than R. Python is primarily used in the field of Artificial Intelligence and game development. Python can pretty much do the same tasks as R: data wrangling, engineering, feature selection web scrapping, app and so on. Python is a tool to deploy and implement machine learning at a large-scale. Python codes are easier to maintain and more robust than R. Years ago; Python didn't have many data analysis and machine learning libraries. Recently, Python is catching up and provides cutting-edge API for machine learning or Artificial Intelligence. Most of the data science job can be done with five Python libraries: Numpy, Pandas, Scipy, Scikit-learn and Seaborn. Python, on the other hand, makes replicability and accessibility easier than R. In fact, if you need to use the results of your analysis in an application or website, Python is the best choice.

* R

It is basically a low-level programming language used by statisticians and data miners for developing statistical software, graphical representations, and for data analysis. R Foundation for Statistical Computing has been supporting it. R has one of the richest ecosystems of around 12000 packages in the open-source repository for performing data analysis. Academics and statisticians have developed R over two decades. R has now one of the richest ecosystems to perform data analysis. There are around 12000 packages available in CRAN (open-source repository). It is possible to find a library for whatever the analysis you want to perform. The rich variety of library makes R the first choice for statistical analysis, especially for specialized analytical work. The cutting-edge difference between R and the other statistical products is the output. R has fantastic tools to communicate the results. Rstudio comes with the library knitr. Xie Yihui wrote this package. He made reporting trivial and elegant. Communicating the findings with a presentation or a document is easy.

3. What is the difference between Functional and Event-based programming.

* In computer science, **functional programming** is a **programming** paradigm (a style of building the structure and elements of computer programs) that treats computation as the evaluation of mathematical functions and avoids changing-state and mutable data. It is a declarative programming paradigm in that programming is done with expressions or declarations instead of statements. In functional code, the output value of a function depends only on its arguments, so calling a function with the same value for an argument always produces the same result. This is in contrast to imperative programming where, in addition to a function's arguments, global program state can affect a function's resulting value. Eliminating side effects, that is, changes in state that do not depend on the function inputs, can make understanding a program easier, which is one of the key motivations for the development of functional programming.
* In computer programming, **event-driven programming** is a programming paradigm in which the flow of the program is determined by events such as user actions (mouse clicks, key presses), sensor outputs, or messages from other programs or threads. Event-driven programming is the dominant paradigm used in graphical user interfaces and other applications (e.g., JavaScript web applications) that are centered on performing certain actions in response to user input. This is also true of programming for device drivers (e.g., P in USB device driver stacks). In an event-driven application, there is generally a main loop that listens for events, and then triggers a callback function when one of those events is detected. In embedded systems, the same may be achieved using hardware interrupts instead of a constantly running main loop. Event-driven programs can be written in any programming language, although the task is easier in languages that provide high-level abstractions, such as await and closures.

4. What do you understand to be ethical hacking.

* Ethical hacking refers to the act of locating weaknesses and vulnerabilities of computer and information systems by duplicating the intent and actions of malicious hackers. Ethical hacking is also known as penetration testing, intrusion testing, or red teaming. An ethical hacker is a security professional who applies their hacking skills for defensive purposes on behalf of the owners of information systems.