**Identify the tools and techniques needed to start a project**

**After the process of searching for resources and methods of work, a set of tools was chosen to help create a special operating system**

* Learning the programming language that will be used for system programming such as: Basic and Pascal language, the most famous of which is C language, and it is important to use the assembly language to create an operating system, because some parts and during programming of the operating system require their use, unlike C ++ which contains keywords (Keywords) You also need a fully built-in operating system to use it, and large parts of Windows 98 have been written in C ++.
* Using a compiler to translate the operating system written in C or C ++ by reading the manual for the chosen language, and the programmer must have comprehensive knowledge of the translator, as well as there are many things that the programmer must master such as the cutting scheme and the dual interface in the language C ++, knowing the well-executed formulas (ELF, PE, COFF, plain binary), and that the .exe formula is subject to the law of intellectual property protection.
* Determine the main idea that will be based on the operating system, such as (Windows), which works on the idea of a simple user interface and high protection.
* Choose the appropriate method of building the operating system where a new operating system can be started from scratch, and the system can also be built if there is a kernel (base) to build on, such as the open source Linux system, which is considered one of the most important operating systems because of its ability to modify and develop.
* Determine whether to use an existing pre-created boot-loader program such as: (GRUB), or Own boot-loader, which must know the hardware of the computer when using it.
* Test the operating system in a virtual environment instead of restarting the computer every time the system is modified, and the virtual environment can be used to run the system while keeping the current operating system running, such as (VMWare), (Microsoft Virtual PC) and (Oracle VirtualBox).
* Gradual work and start with small things, such as displaying texts and then moving to memory management and multitasking and so on.