**Storing Data in Secondary Memory**

**Introduction**

Over the years, with the advancement of technology, the amount of data generated per moment has grown at a very fast rate. This is because of the development of technology and the use of the web. Technology has grown to the point of allowing individuals to have options of managing their data as they generate it. This has been made possible by the existence of various storage media as well as the existence of personal computers and online sites that facilitate individual interactions which result in the generation of data.

**Secondary Memory**

Secondary memory is the additional memory to a device that stores programs and data for an extended period. This is in comparison with main memory which is characterized by the short span of data storage, the high cost of acquisition, the low capacity for storage and the functionality which involves working directly with the device's processor (Wong, & Salahuddin, 2015). Secondary memory has vast storage space, is cheaper to attain, doesn't work in connection to the processor but is rather slow in response to its functions. Secondary memory was developed to enable the storage of large programs and the predicted mass data in the use of computers. A relational database is a digital database. Data stored in a relational database is in accordance with the model of the database. Here, data would be stored in tables and accessible for manipulation through various commands (Wong, & Salahuddin, 2015).

Secondary storage devices are part of the two storage categories. They can either be internal or external. Internal storage options are inbuilt while the external ones come as peripheral devices acting as extensions to the internal memory. Examples of internal forms of secondary memory are hard disks. Internal hard drives come in different sizes with special consideration to the specific function of the computer. When it comes to the external examples of secondary memory, the list becomes a bit complex. The first example is hard disks. They exist for both internal and external sources. External hard disks vary in size as well; their advantage is that they are portable (Wong, & Salahuddin, 2015). The most common use for hard disks is for the storage of back up data. When there is a risk of losing data in a computer, the best alternative is the storage of data in an external hard disk. Another example is memory cards and flash drives. These two had lower storage space and used for smaller sets of data. Memory cards are used to extend the memory of personal computers such as mobile phones. Flash drives are used in simple file transfer as well as storage of limited amounts of data. There also exists compact disks (CD). These come in the division of both internal and external forms. Versions of CD’s include magnetic and optical disks (Wong, & Salahuddin, 2015). The internal forms store back up data as well as audio and visual data.

**Secondary Memory Efficiency**

Secondary memory has both its advantages and disadvantages with regards to efficiency. Looking at the benefits, it is possible to draw the fact that secondary memory helps in the functionality of computers. For computers to efficiently perform their functions, the ability to store data is very crucial, this way, secondary memory is very efficient when it comes to the running of any computer (Levy, 2014). Secondary memory is also of the essence as it allows for the storage of large chunks of data at a time. This is very advantageous to computers that generate data in a progressive state.

Secondary memory is also an added advantage to the business. Initially, the cost of running a business was very high due to the financial strain caused by the storage of data. Data was stored in physical forms in files. This consumed large amounts of space as well as time in filing and data presentation which was done manually. With the coming of secondary memory in computers, the bulk of work and the time wasted in manually completing tasks was cut down making record keeping and job interaction much simpler (Levy, 2014).

On the downside, one of the disadvantages of secondary memory is speed. The methods of storage are slow because they are electronics that are mechanical (Levy, 2014). This is because retrieving data involves a process that is a bit hectic for the device. Also, while secondary memory only provides storage for a computer, primary memory aids the Central Processing Unit (CPU) in its functionality. The CPU is supported by primary memory in performing computer functions hence the disadvantage of secondary memory.

**Algorithm Efficiency**

Algorithm efficiency, on the other hand, is the property of algorithms that relate to the number of resources used in the computation (Ahmed, & Salam, 2015). To come up with this, an analysis of algorithms needs to be done therefore generating how efficient the algorithm is (Ahmed, & Salam, 2015). For an algorithm to be considered suitable, it needs to make use of the least amount of resources in completing a specific task. The first resource measured in the time taken to complete an undertaking, an algorithm is more efficient when it requires the least time to complete a specific task. The second resource under consideration is the space that the data takes in the storage. Storage involves two things among them the intrinsic space usage which is the space needed for the data and the auxiliary space usage which is the space that is used by the code in the storage process.

In modern computers that make use of batteries to store power and use it later, power consumption is a resource that is considered. In power consumption, the two main items found are the direct power consumption and indirect power consumption. Direct power consumption involves power needed to run a computer while indirect power involves energy used for cooling and lighting the laptop. With consideration of these three resources, algorithm efficiency is measured, and the machine that gets to use the least of the resources is considered to be the one that has the most efficiency and the one that can deliver the best results in the actual work environment. Algorithms are used in the sorting of data. Therefore, for algorithms to be efficient, the number of resources used needs to be the least possible.

**Conclusion**

Data storage is a very crucial aspect in the current state of the world. If there were not efficient methods for data storage, there would be a bulk of records taking up a considerable amount of space in the world. Secondary memory has its share in the management of data traffic. When it comes to its relation with computers, secondary memory is quite efficient, and this is proven by its advantages but not leaving out the drawbacks. For algorithm efficiency, the consideration of resource use is looked into.

Reference

Ahmed, J., & Salam, Z. (2015). An improved perturb and observe (P&O) maximum power point tracking (MPPT) algorithm for higher efficiency. Applied Energy, 150, 97-108.

Levy, H. M. (2014). Capability-based computer systems. Digital Press.

Wong, H. S. P., & Salahuddin, S. (2015). Memory leads the way to better computing. Nature Nanotechnology, 10(3), 191.