**CHAPTER ONE**

**INTRODUCTION**

**1.0 Preamble**

This project work titled "Computerised Software Tutorial on troubleshooting microcomputers” is designed to provide intelligent information to readers, engineers, technical personal and any other computer used concerned with the power functional types of faults, possible cases of these faults, possible corrective measures as well as maintenance routine that can be carried out on microcomputers.

* 1. **BACKGROUND OF THE STUDY**

Troubleshooting is a systematic process used to locate the cause of a fault in a computer system and correct the relevant hardware and software issues. Approaching problem solving using a logical and methodical approach is essential to successful resolution. Although experience is very useful to problem solving, following a troubleshooting model will enhance effectiveness and speed. Google (2020).

Troubleshooting is a way of discovering what is causing a problem and fixing it. Troubleshooting requires an organized and logical approach to problems with computers and other components. Sometimes issues arise during preventive maintenance. At other times, customers may contact you with problems. Taking a logical approach to troubleshooting allows you to eliminate variables and identify causes of problems in a systematic order. Asking the right questions, testing the right hardware, and examining the right data helps you understand the problem and form a proposed solution. Cisco Press (2020).

Troubleshooting is a skill that you refine over time. Each time you solve a problem, you increase your troubleshooting skills by gaining more experience. You learn how and when to combine steps, or skip steps, to reach a solution quickly. The troubleshooting process is a guideline that is modified to fit your needs. Cisco Press (2020).

**STATEMENT OF THE PROBLEM**

* Data loss
* File corruption Etc.

Before you begin troubleshooting problems, always follow the necessary precautions to protect data on a computer. Some repairs, such as replacing a hard drive or reinstalling an operating system, might put the data on the computer at risk. Make sure you do everything possible to prevent data loss while attempting repairs.

SOLUTION

Data Backup

A **data backup** is a copy of the data on a computer hard drive that is saved to another storage device or to cloud storage. **Cloud storage** is online storage that is accessed via the Internet. In an organization, backups may be performed on a daily, weekly, or monthly basis.

If you are unsure about whether a backup has been done, do not attempt any troubleshooting activities until you check with the customer. Here is a list of items to verify with the customer regarding whether a backup has been performed:

* Date of the last backup
* Contents of the backup
* Data integrity of the backup
* Availability of all backup media for a data restore

If the customer does not have a current backup and you are not able to create one, ask the customer to sign a liability release form. A liability release form contains at least the following information:

* Permission to work on the computer without having a current backup available
* Release from liability if data is lost or corrupted
* Description of the work to be performed
  1. **MOTIVATION**

Many or few individual users of a computer system has fall victim of computers fault in one way or the other, perhaps ignorance do affect some computer users though. Whereas some users, engineer or technician find it difficult to locate or confirm the type of fault when their system derive some, most users don’t have an idea of what’s happening to their system neither do they have the idea of some basic step to try and rectify the issues, whereas some issue can be simple as rebooting the system. In this case they get stranded until they consult a qualified computer specialist (technicians, engineers).

So the motive of this research/project is to re-educate every computer users, technicians, engineers, undergraduate student in computer engineering about the basic step to take on their own.

To reduce the number all users falling victim of computer errors/fault in which they gain self-knowledge or idea of how to troubleshoot some system error/fault and avoid been stranded.

* 1. **PURPOSE OF THE STUDY**

The aims and objectives of this project is to develop a computerized software tutorial platform on troubleshooting microcomputers;

1. To re-educate technicians or individual users on the composition of what is generally known as computer troubleshooting and it various components.
2. To follows suit and therefore designed to give a view of what makes up a computer system, the various techniques involves in fault diagnosing of component units and guide line to correcting these faults.
3. To enable the engineers to have a foresight of the problem facing a computer before attacking it.
   1. **METHODOLOGY**

The research methodology used in this research work include includes documentation, the internet, textbooks and direct observation on the existing system. These methods provide reliable information and required knowledge for this research and proper guidance; HTML and CSS will be employed in designing the front-end, Python and JavaScript technology will be used as the scripting language; MySQL will be used as the database (backend), Django will be used as the local server. The combination of the above will help build a very robust platform that will be useful, fast and handy for the dissemination of useful information on troubleshooting.

* 1. **SCOPE OF THE STUDY**

The scope of this project work is limited to the Hardware and software troubleshooting microcomputers, investigating the different output of quite being carried out by manual system within this scope, the target is aimed at achieving the best and efficient software tutorial on troubleshooting microcomputers.

The necessary step by step carrying out or making use of the tutorial is carried out in the project work to enable correct entries of request to give/provide correct answers to the questions being a stead during the troubleshooting process.

This project that based on software tutorial on troubleshooting microcomputer is to provide the engineers, technicians and even the engineering students who are however, undergoing their studies to acquire wisdom and knowledge on the steps involved troubleshooting.

* 1. **EXPECTED CONTRIBUTION TO KNOWLEDGED**

This helps maintenance, technicians find the right problems and solutions more quickly. When troubleshooting is done correctly, your whole maintenance operation can overcome backlog, lost production and compliance issues much more efficiently

Taking a logical approach to troubleshooting allows you to eliminate variables and identify causes of problems in a systematic order. Asking the right questions, testing the right hardware, and examining the right data helps you understand the problems and form a proposed solution.

* 1. **DEFINITION OF TERMS**

The researcher have decided to define some terms as used in this work in order to avoid misunderstanding, misconceptions, misinterpretation of terms due to the ambiguity of words. The following are define according to how it is used in this project work.

The problem definition of this project detailed on the use of the former system on how to troubleshoot micro-computers both the hardware and the software and the software configuration of computer and also covered the computerized system hardware and software that is, using software tutorials on troubleshooting micro-computers.

**Computer:** A computer system can simply be seen as an electronic device or machine which have the ability or capability of accepting data, processing and storing data, bringing out the results in human readable and understanding form.

**Micro-computer:** Micro-computer can be defined as a complete computer on a small scale, designed for use by one person at a time.

**Computer Software:** A computer Software can be defined as a set of programs that instructs the computer about the tasks to be performed, it tells the computer how the tasks are to be performed or hardware carries out these tasks.

**Computer Hardware:** can be define as the physical parts of a computer such as the case, central processing unit, random access memory, monitor, mouse, keyboard, computer data storage, graphics card, sound card, speakers and motherboard which aid the operation of the software.

**Troubleshooting:** troubleshooting as regards to this study can be defined as a form of problem solving, often applied to repair failed products or processes on a machine or a system. Which could be logical, systematic search for the source of a problem in order to solve it and make the product or process operational again.

**Tutorial:** Tutorial can be seen as a method of transferring knowledge and may be used as part of a learning process more interactive and specific than a book or a lecture.