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INTRUSION DETECTION SYSTEM (IDS) BASED ON INTERNET

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Abstract:- Intrusion detection System software is for looking over the lab system. This software consist of form where you have to give correct username and password for login with administrator and after that admin can access the information of users who have logged in same system early. It also contain not only option for other user who can create his own account, if he is logging in first time but also by using previous username and password. This software based access system normally applies for the security application.

This software uses the 'system files (S.F)' for locking windows desktop and task manager. If you are logging in with administrator then you have all privileges to access system and if you are logging in with other user then you can access only normal application programs. Here, we are making a security to the 'Personal Computers (P.C).' And make system data available to only to the authenticated users.

Keywords: - *Intrusion detection (I.D) ,Personal computer (P.C), System file (S.F).*

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I INTRODUCTION

- Intrusion: "A set of actions aimed to compromise the security goals, namely Integrity, confidentiality, or availability, of a computing and networking resource".
- Intrusion detection: "The process of identifying and responding to intrusion activities".

Intrusion detection system (IDS) software is for looking over the lab system. This software consist of form where you have to give correct username and password for login with administrator and after that admin can access the information of users who have logged in same system early. It also contains not only option for other user who can create his own account, if he is logging in first time but also by using previous username and password. This software based access system normally applies for the security application. This software uses the 'system files' for locking windows desktop and task manager. If you are logging in with administrator then you have all privileges to access system and if you are logging in with other user then you can access only normal application programs. Here, we are making a security to the 'Personal Computers.' And make system data available to only to the authenticated users.

Intrusion detection system is one of dynamic mechanisms along with network analyzers and others. Intrusion detection determines specific goal of detecting attacks [4]. Intrusion detection monitors processes prevailing in a computer system or network and analyzes them to detect any deviation or any kind of abnormalities, which are violations of computer security policies.

There are two methods of intrusion detection: misuse and anomaly. Misuse aims to determine attack signatures in the monitored resource. Anomaly depends on knowledge of normal behavior and any deviation from this [5]. Anomaly detection has gained popularity as it became effective against new attacks. Machine Learning algorithms can also be used for anomaly detection. Machine learning algorithms are trained and then be applied on unseen input for the actual detection process. There are many classification algorithms in machine learning that can be trained and used to detect attack in a network. To further enhance the performance of these classifiers and reduce the detection time feature reduction algorithms can be used.

Siannas Ganapathy et al. [3] presented a survey on intelligent techniques for Intrusion Detection (ID) by feature selection and classification techniques, which includes many statistical

and machine learning algorithms that are used as classifiers or feature selection techniques. Vinchurkar et al. [7] analyzed the NN and other machine learning approaches in designing Intrusion Detection System (IDS). Jail et al. [6] compared the performance of machine learning algorithms in network intrusion detection and found that DT (DT) gives better accuracy compared to SVM (SVM) and NB (NB). Amor et al [1] compared two classifiers i.e. NB and DT. They also found that DT performs better than NB.

1.1 Process:

For this application you have to install this software on operating system .After installing it you have to restart your computer. When you restart after loading operating system window desktop automatically get locked.

In this form there are two options for administrator and other user. Administrator for the teacher and option of other user is for students. If we click on administrator you have to give correct admin user name and password then you will log in. Until logging in task manager is disabled. Once you will log in with administrator task manager is enabled and the window will come which give the information of users who have logged in previously with date on which they have logged in with time of log in.

If you will click on other user option on starting form another form will appear .This form will contain two options**:**

1) Create user

2) Login existing

If you are a new user and you don't have username and password you can use option of create user. Give your username and password and account will be created then click on back button. Click on Login existing. Provide your new username and password and you will be successfully logged in.

If you are old user just click on Login existing provide your respective username and password then you will be successfully logged in. In this other user case you will never have access to task manager. Then do your task and shut down your PC normally. Your username, date and time will be saved for admin administration.

1.2 Goals & Objectives:

1. Main objective of this project is to identify and authenticate authorized user.
2. To avoid unauthorized users from to access the computer system.
3. To make it easy for administrator of respective system to login in the system.
4. The system should be handled by proper user.
5. Mainly used in for detecting, monitoring and preventing use of system.
6. This access system helps to keep track and minimize risk by the interactions between any unauthorized user and the computer system.
7. To provide security for various data, software, projects, files and access of system.
8. To avoid unauthorized use of system that is a major danger since it represents a significant threat to information security and confidentiality.

It provides the centralized access and control to the authorized user...

II LITERATURE SURVEY

Literature review is an important chapter in this Project as it is a research study of system that is going to be developed. Through this study, the developer would be able to gain more knowledge and understanding in developing new software. As a result, the developer would be able to improve the weaknesses and integrates the existing strengths with the new features in order to improve functionality of existing software.

2.1) How to disable task manager?

Windows Task Manager is a task manager application included with the Microsoft Windows NT family of operating systems that provides detailed information about computer performance and running applications, processes and CPU usage, commit charge and memory information, network activity and statistics, logged-in users, and system services. The Task Manager can also be used to set process priorities, processor affinity, forcibly terminate processes, and shut down, restart, hibernate or log off from Windows. Windows Task Manager was introduced with Windows NT 4.0. Previous versions of Windows NT included the Task List application, which had far fewer features. The task list was capable of listing currently running processes and killing them, or creating a new process. In Windows XP only, a Shutdown menu is also present that allows access to Standby, Hibernate, Turn off, Restart, Log Off and Switch User.

Earlier versions of Microsoft Windows (Microsoft Windows 3.x, Windows 95, and Windows 98) had a program known as tasks to display the programs currently running. This file was executed by running the taskman.exe file from the C:\Windows directory.

2.2) Launching Task Manager

Task Manager on Windows XP, showing the System Idle Process. The Task Manager can be launched using any of the following four methods:

1. Using the context menu on the taskbar and selecting "Task Manager" (for Win2000/WinXP/Vista) or "Start Task Manager" (for Windows 7).

2. Using the key combination Ctrl+Shift+Esc.

3. In Windows NT, Windows 2000, and Windows XP (only with the Welcome Screen disabled), the key combination Ctrl+Alt+Del opens the Windows Security dialog, upon which the user can then click on "Task Manager" to start Task Manager. In Windows Vista and Windows 7, Ctrl+Alt+Del opens a list of options, one of which, Task Manager, opens Task Manager. In Windows 2000, Windows XP, Windows Vista and Windows 7, pressing Ctrl+Shift+Esc directly launches Task Manager, as does Ctrl+Alt+Delete if the Welcome Screen is enabled (Windows XP only).

4. Starting "Taskmgr.exe" from a command line, GUI (located in C:\Windows\System32\taskmgr.exe) or a shortcut. Property sheets ApplicationsThe Applications tab in Task Manager shows a list of programs currently running. A set of rules[specify] determines whether a process appears on this tab or not. Most applications that have a taskbar entry will appear on this tab, but this is not always the case.[citation needed]

Right-clicking any of the applications in the list allows (among other things) switching to that application, ending the application, and showing the process on the Processes tab that is associated with the application.

Choosing to End Task from the Applications tab causes a request to be sent to the application for it to terminate. This is different from what happens when End Process is chosen from the Processes tab.

The Processes tab shows a list of all running processes on the system. This list includes services and processes from other accounts. Prior to Windows XP, process names longer than 15 characters in length are truncated. Beginning with Windows XP, the Delete key can also be used to terminate processes on the Processes tab.

Right-clicking a process in the list allows changing the priority the process has, setting processor affinity (setting which CPU(s) the process can execute on), and allows the process to be ended. Choosing to End Process causes Windows to immediately kill the process. Choosing to "end Process Tree" causes Windows to immediately kill the process, as well as all processes directly or indirectly started by that process. Unlike choosing End Task from the Applications tab, when choosing to End Process the program is not given warning nor a chance to clean up before ending. However, when a process that is running under a security context different than the one of the process which issued the call to Terminate Process, the use of the KILL command line utility is required.

By default the processes tab shows the user account the process is running under, the amount of CPU, and the amount of memory the process is currently consuming. There are many more columns that can be shown by choosing Select columns... from the View menu. Performance The performance tab shows overall statistics about the system's performance, most notably the overall amount of CPU usage and how much memory is being used. A chart of recent usage for both of these values is shown. Details about specific areas of memory are also shown.

There is an option to break the CPU usage graph into two sections; kernel mode time and user mode time. Many device drivers and core parts of the operating system run in kernel mode, whereas user applications run in user mode. This option can be turned on by choosing Show kernel times from the View menu. When this option is turned on the CPU usage graph will show a green and a red area. The red area is the amount of time spent in kernel mode, and the green area shows the amount of time spent in user mode.

Networking The Networking tab, introduced in Windows XP, shows statistics relating to each of the network adapters present in the computer. By default the adapter name, percentage of network utilization, link speed and state of the network adapter are shown, along with a chart of recent activity. More options can be shown by choosing Select columns... from the View menu.

Users

The Users tab, also introduced in Windows XP, shows all users that currently have a session on the computer. On server computers there may be several users connected to the computer using Terminal Services. As of Windows XP, there may also be multiple users logged onto the computer at one time using the Fast User Switching feature. Users can be disconnected or logged off from this tab.

2.3) why it is necessary to block the task manager?

To provide login utility it was necessary to block the task manager. If we didn't do that user will have full privileges to use it for killing this software. Once you kill the task manager user can't do any process killing or restart the computer. He just have to provide correct username and password for login.

III PROJECT DESIGN

3.1 Scope of Project

According to software engineering scope of project refers to boundary and limitation of project. Our "Intrusion detection System (Lab management project)" is also having scope with following perspective.

This system being commercial project, it has massive scope everywhere where computer is used. While considering the project scope we generally discuss about the areas of its applications. Its application areas are as follows:

- **Organization:**

1. Software Companies
2. I.T. Industries
3. Research Departments
4. Small to Mid-size Organizations
5. Corporate Organizations
6. Computer Labs of Schools and Colleges etc
7. According to its application areas users will be as follows

- **User:**

1. Network Administrators
2. Corporate Users
3. Software Developers
4. Hardware Engineers
5. IT Support Specialists
6. Senior Programmers
7. Industrial Control Personnel
8. Systems Integrators
9. System Administrators
10. Science Technicians
11. Lab Experts
12. University Students and many more
13. Accessing or denied access of computer

- **Computer labs in Educational institutes: -**

The educational institute it may be a school, college, or any private institutes where there is plenty use of computers, this project performs an Important role. In these kinds of institutes students use computers without permission a lot of times. As there are more possibilities of hacking, losing data, files, important documents and it may cause problem to personal computer or network environment (LAN). Keeping regular watch on students, formatting pc, updating passwords periodically is not "Feasible". This may disturb the regular schedule of the institute.

So it is the major application area where this project can be used.

Corporate offices: -

The office where there is use of computers is common those also required this kind of project for the security of data. The hackers can hack the password of computer or unauthorized users can access the computer. They can hack the data or change the data or delete the data. To avoid such kind of disturbances, problems onto the corporate offices this project becomes useful.

Software Industries: -

Tracking corporate data stored on personal flash drives is a significant challenge; the drives are small, common, and constantly moving. Many industries use password authentication system which can be hacked.

The software industries which produce software, it uses password based computer access system on large scale. The smart card based computer access system can be the sound replacement of password based systems.

3.2 Feasibility Report

Here, in this report there we mention about the possibility of our Project completion. Whether our project is feasible or not? What actually Work have to be done? Which tasks are performing up to the time? Can we build such type of application? These all are mention at the following point:

What we show?

Project aim is that to give a security to Personal computer by using the famous VB.net. It gives access of computer to only Authorized user .

3.2.1 Facility and utility

Although there are other application are also available in the market for authentication. But still not used in generally everywhere in the organization level. Our project main aspect is the Smart register based login utility.

Due to login time, log off time we can control over attendance issues over labs of schools and colleges. It is easy

to use and handle. Now days such types of security applications are must need in the education level.

Giving unique use of applications for respective students of specific year make them to do only required job during practical session. No one can access, delete or modify the data which is present on computer. No problem of viruses which come by pen drives as there is no access to desktop process. He/she can only do practical related work.

It was all about educational level. We can make this software for industries where there will be access to work related applications. You are able to check attendance of employees. So we can modify our software according to need of customer!!

3.3 File Specification

Only admin will have access to file system. Other user will have access to only there work related application.

How create and what we have to design a Good project: A knowledge of basic form structure in VB.net is key of our project. We required fewer knowledge of windows inbuilt functions such as task manager and date-time access to achieve the goal. The database applies for retrieving other users information.

The visible process is simple; just load O.S. and follow the step according to type of user. Admin can read other users information and other users are restricted to use there essential application.

Project must be on two levels

First as; identify the user at the time of windows login. It is possible, for this achievement we required to understand the working of system files.

Second one as; identify the user after windows login. This is possible; here system run the .exe file of our application from start-up, then it receives response for hardware connectivity. Give correct username and password according to type of user and you can do your task. By performing these entire tasks successfully we are able to build our project with most satisfaction.

Resources:

Here, specifies the resources which are needed to completion of project. Which resources had been used to go in the direction of completion of project, even they are an environmental resources.

- Use Internet to search the information.
- Discuss with the Guide to accomplish the project.
- Meet to the experienced staff of I.T. side.
- Also meet the professional experts, related with this languages..
- Various articles related with VB.net language.

3.3.1 Financial feasibility:

It determines whether the project is financially feasible or not It will useful to common user or not?

- This project is financially feasible.
- This application is less expensive.
- Not required to spend more money on it.
- The guaranteed security will be available at low cost.
- The overall cost of project is under the limitations of normal user.

Might be it seen as more at student level, but at organization level or in any company, it is very less expensive and also useful. The market will afford like this project.

Risk analysis:

Risk concerns the future happening, and what can go wrong in the project. In software application does not exist several risks. No major risk while during the working of project.

Challenging task:

The challenging task in this project is avoiding user from using service of task manager. To identify user, application run from start-up as a process. And task should be end from Task Manager. This makes less importance of project.

3.3.2. Time feasibility:

Time feasibility is most sensational part of project. It shows that what your casual approach for the project is. How many time will required for completion of project? The project will be go in the well direction according to planned time or not? Dividing task is well performed by the project members or not?

We divide the time for working like

- Planning and analyzing about project.
- Understand the basics of project.
- Search and discuss about content of project.
- Divide the work to every member.
- Conform about working of every component.
- Updates the information related with this from market.
- Visit to the place where this technology is being used.

- See or handle the other application like this at industrial level.
- Implement the project in reality.

By including this entire task with performing, overall time of our project is three months from the first level.

3.3.3 Economic Feasibility:

Economic analysis is the most frequently used method for evaluating the effectiveness of a new system. More commonly known as cost or benefit analysis, the procedure is to determine the benefits and saving that are excepted from a candidate system and compare them with cost. If benefits outweigh costs, then decision is made to design and implement a system. An entrepreneur must accurately weigh the cost versus benefit before taking an action.

Cost-based study: It is important to identify cost and benefit factors, which can be categorized as follows: 1.Development cost and 2.Operating cost. This is an analysis of the cost to be incurred in the system and the benefits derivable out of system.

Time base study: This is an analysis of the time required to achieve a return on investment .The future value of project is also factor. Economic feasibility also related to each and every cost.

Operational Feasibility

Operational feasibility is a measure of how well a proposed system solves the problems, and take advantages of the opportunities identified during scope definition and how it satisfies the requirement identified in the requirements analysis phase of the system development.

3.3.4 Technical feasibility:

Technical feasibility related with the requirements needed for the project.

It includes: Does necessary technical support exit? Does the proposed system have technical capacity to hold the data required using proposed system? The recommended system provided the necessary hardware or software platform regarding memory capacity, speed etc.

Environmental Feasibility

Our client is well educated in computer field. So he can operate the software easily. So such types of software and hardware requirements are:

IV ASSUMPTION

- System should specify the registered user
- To make it easy for administrator of respective system to login in the system.
- To provide security for various data, software, projects, files and access of system
- System should contain windows XP Database should be placed in specified path before using this software

V SYSTEM ARCHITECTURE

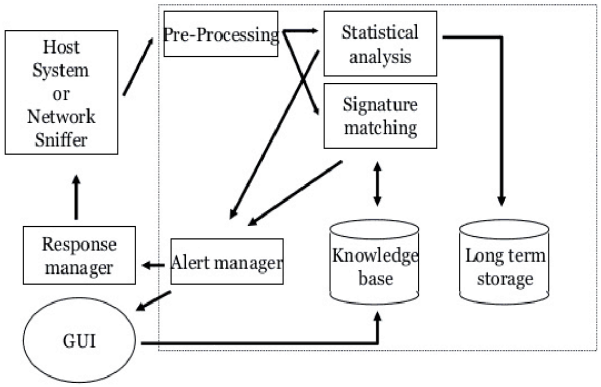

Figure 1 System Architecture

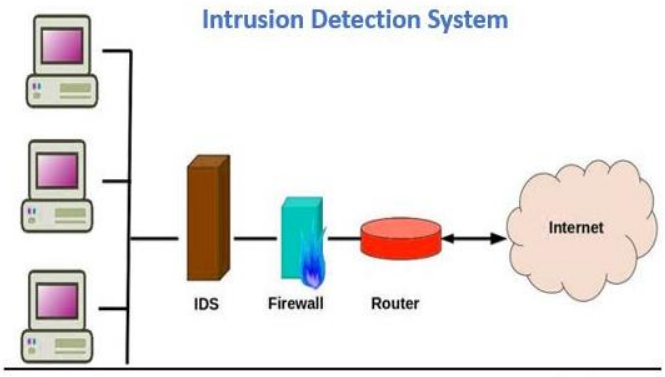

Figure 2 Intrusion Detection System

VI. CONCLUSION

We have developed project by considering our college environment. In this we have restricted student from making misuses of computer in the practical section and also make easy for teacher to give a marks as per practical's performed by student.

This software also locks the Desktop for students or users and it is only accessible for administrator. By using this software teacher can also keep record of the student

attendance using the history of student login time and login date.

VII. FUTURE SCOPE

Our project is developed for student of our college EEC(Everest Engg College). It will maintain all the records about students. Our software restrict the from doing unnecessary work at practical session.

We can add many features to our project in future like Teacher can share some document to student as per year; student can access much software at a time.

This project is very useful and helpful in future. We can add many features in this project and also enhance this project in future for more profit. By adding more feature to this project we can use this software in many places like Organization, institute, colleges.

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