



An Advance Task Manager Application for Android Devices

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Abstract: *The huge growth of the mobile industry leads to more efficient software to be developed in a mobile phone or android platform. the mobile software and games are now powerful to compete with computer's software but as it seems the problems will also to be carried out from this enhancement. problems in the sense bug or misbehave of any software that can hang your device. so the Task manager would be needed for mobile devices too, where we can monitor what are all the applications are running and the complete package of information in one single Application. The Task Manager application shows all the device's active applications, along with information about: task manager will show how much processor power and cores the app is consuming, and the RAM item shows how much memory of RAM the app occupies. You can use Task Manager to end or turn off tasks that are taking too much CPU time or memory or that any bug containing app. You can click applications you want to stop and then click End Apps button. This project will provide the Active applications (Applications that are currently running on the device), Installed (Applications that have been installed from the Play Store or any third party provider) RAM manager (Random Access Memory), Storage (Available memory storage), Network uses (Amount of internet data used), GPU (graphics processing unit), Screen time (time spend on app in day), Internet Speed (speed of connected internet source) and Temperature (temperature of the whole device).*

I. INTRODUCTION

The task manager is kind of problem solver for user, whenever any bug causing application or task stuck your device, the user can call task manager to handle that situation and end or kill that bug containing task or application. similarly we have seen this type of task manager in windows machine. no one can use windows machine without task manager. but now user will need that type of application in mobile devices also because mobile devices are getting powerful processor as well as applications. the task manager will handle CPU, RAM, GPU, network, disk and internet speed of your device means user can see that how much these things are used by individual active application and also force stop or end that application. it will also protect the user's privacy from the malware applications, malware applications may be stealing your device's

data and send to it's own databases or it can be doing some kind of un-authorized activity for third party application's benefit. for example, ad-tracker or truth spy application can steal your data from your mobile by running in the background without acknowledging the user.

so this can be fixed using task manager application it will show you all currently running apps even system apps will be shown so that you can manage and find which application is causing trouble to your privacy.

The other major point to be considered in this application is its contain an emergency switch to invoke the application in difficult time like when your mobile phone gets stuck or hang, when your mobile phone gets unresponsive and when you do not have any option other than switching off or restarting the mobile phone. The app will contain one shortcut switch to invoke the application like press and hold the volume up + volume down button for the 5 seconds. this idea is quite similar to the windows machine's (alt+ctrl+del). it will allow user to instant shut down of trouble-causing application or totally shut down all running applications, this will save the users time and allow user to take actions. user can do many operations with running applications as: restart (restart that particular application), end task (it will stop the application), cache clear (clears temporary files of application), uninstall (removes the application from the device), memory location (manage whether application is in system storage or external storage). all of these options will be available by touch + hold on the application name in running application column.

The mobile gaming is growing fast in current time and high-end games are also available for mobile devices. that also requires heavy CPU and GPU power along with cool down system. when user runs the heavy load application it will use maximum capacity of your CPU and GPU according to the game system requirements. at that time if some other applications are running in background and using CPU or GPU's computing power than it will slow down your gaming experience by fewer fps, also maximum CPU & GPU use will create heating problems in mobile phone. so by task manager application we provided one application lock option in that option user have to select application and click on the lock option that will lock down that selected application and it will close all other non-system applications. because some system applications are necessary for general mobile operations. for remove lockdown mode user have to invoke task manager application by emergency key and have to press that lockdown button again, when an application running in lockdown mode the lockdown button's name will be changed to unlock. so you can lock down one single third-party application only at a time. this feature will help the user to direct the device's true CPU & GPU power in own interest. that user can use maximum power out of the devices. whole device's temperature will be shown in the corner of our application, so that user can monitor the temperature of device and put device on some material that transfers or absorbs heat of the device.

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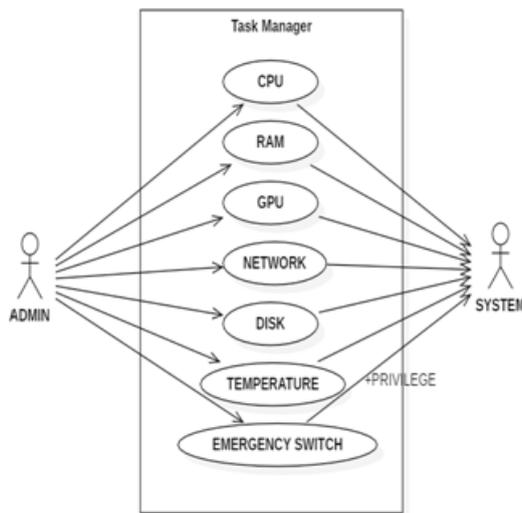
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II. EXISTING SYSTEM

currently the task manager is available only on windows machine, but in mobile devices no such type of application is available. there are few applications named as task manager or advanced task manager but they are not providing appropriate features. like they are just showing running applications and total cpu, ram uses, not by individual apps and providing kill task button. we can not know what is cpu, ram, disk, network, gpu are getting used by individual applications and they don't have any emergency switch to troubleshoot in difficult times. what is the use of task manager if you can not open it in hanged device or when device is frozen. there are some application named task manager in playstore but they are totally different from this because they are only providing end task option for individual applications and not showing any individual cpu, ram uses and they don't have any other features.

The most important thing is the advertisement in available applications, as we know that the task manager is meant for monitoring devices performance for getting high speed or processing power for applications. but the applications which are available are not giving features except end task and giving advertisements in application. that will surely slow down your device performance. because advertisement will use ad tracker in some cases. so moreover most of ram and CPU power is consumed by task manager only and that is not task manager meant for. task manager has to use lowest processing power and ram then only it will be helpful for the user.

USECASE DIAGRAM



In the above diagram shown that how the user will interact with the application and how the application will interact with the system as well as user. task manager application has to get administrative permission for showing anything about device. user has to give all permissions to the task manager else, the application will not work. in the use-case diagram, we saw that if a user wants to know anything from app then the app will request that particular information from the system. if the user has provided permission to the task manager then the system will give access to that particular information and task manager application will show that information to the user. for killing or force stopping the tasks also task manager will require permission from the user for changing or modifying devices, so this application will require administrative permission for a run.

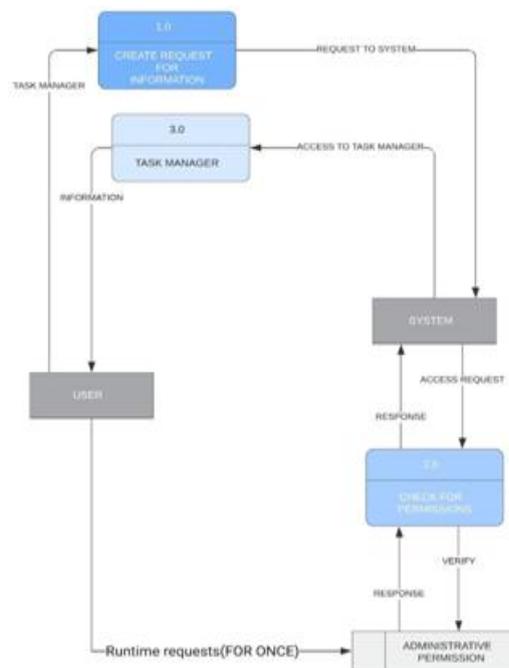
III. PERMISSIONS OVERVIEW

this types of applications are very complex to build because we have to follow user's privacy policies, we have to get user's permissions but even after getting permission from user some things are can not be done. that things will require rooted android phone as it will disconnect devices from its OS provider and that allows you to realize root access to the humanoid OS code. It offers you privileges to change the computer code on the device or install alternative computer code that the manufacturer wouldn't commonly permit you to. And permanently mobile security reasons: they don't wish users to form modifications to the phones that would end in accidents on the far side repair; it's easier for them to offer support if they permit users to solely use the constant unadapted version of the computer code. But many users have already developed ontogeny ways, that vary looking on the device. They are available on the web, and more and more Android users are resorting to them because of the powerful perks they provide, like: a download of any app, regardless of the play store they're posted on. it can create havoc. And even done properly, if your phone doesn't have correct antivirus protection for humanoid, ontogeny leaves your device hospitable all forms of malware.

IV. FUNCTIONAL NEEDS

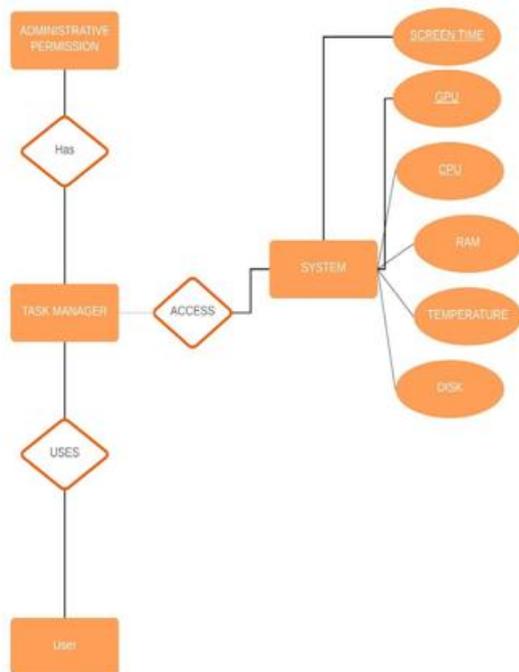
1. It will improve the device's processor health as well as capability.
2. It will help devices run smoothly without any type of lag.
3. Improve battery life and performance, as it will end unnecessary tasks.
4. Improve individual application experience by diverting maximum processing and graphical unit to a particular app.
5. Monitor daily time spend in each application for examining personal health care or child monitoring.
6. Emergency Switch helps users in situation of full device hang or unresponsive

DATA - FLOW DIAGRAM



Above Data-flow diagram shows how total work will be done when the user uses the task manager application. when the user opens the task manager application then it will fetch the information's from system with the user's permission(permission will be asked once after installation of the application). then the system will verify the access of application and give pieces of information that will be shown in the window of task manager application.

E - R DIAGRAM



Above entity-relationship diagram describes the information about workflow of the task manager application. we can consider as blueprint of the application that simply tell us how will be the structure of the task manager and how it will work with user's end and system's end. system have all the information we only have to access it with permission of administrative. we can consider it for now but further changes and implementations of best algorithms can be done later but for now in starting stage we have to consider this as a blueprint. it's saying that when user will use the task manager application then if task manager has administrative permission then it will show information by accessing the system.

V. Discussion

Let discuss how to approach to the result, we have to design the layout of the application on paper, then we will design the algorithm as pseudo-code for task manager application on paper. because more time you spend on paper then less bug you will get on your development part. now we will design layout in Adobe xd and import to the android studio. we'll do some modifications in the flutter and android studio with using of XML (Extensible Markup Language). its has some document encoding format that code is human readable as well as machine-readable, we will use this language for designing the (theme, style, design). we are done with the front end work of the task manager application. now come to the developing part. we have to develop this application keeping in mind that it should be lite weight as well as faster. it should not contain any bugs. we have to use KOTLIN or JAVA for developing the application in android studio. because android studio supports only those two languages. kotlin is programming language design to

compatible with java and JVM, it's cross-platform language, android studio 2019 is now supported java and kotlin both languages. we will use kotlin as supporting language to java because java will give huge library. it is a fully object-oriented programming language, it requires JDK installed in the machine to use. that will reduce the complexity of coding part. we have to get permissions from the user first. so we will add few lines of code to android.manifest.xml file to ask administrative permission from user. then we will define the id for each element we used in task manager application. now all the prerequisites are done and we have to write the logic of the application in code. we have to implement the algorithm that we created on paper. algorithm should be very efficient with less time complexity as well as less space complexity. in coding part we have to give pop up for asking for permission as per new android regulations. we have to give terms and condition part for the prevent violating the privacy policy. for developing using the above software will require a decent computer, having a minimum of 8 GB ram, 4 GB graphics card, appropriate hard drive, core i3 or higher 64 x windows machine.

ADVANTAGES

1. The task manager application has several advantages, as if we are using several applications at same time, the phone goes slow down but if we have the task manager application with in that device then it will help user to close many applications and task that are unnecessary and running in background. so, we can kill the unnecessary applications and tasks for time being. so it will fasten the speed of the device.
2. it will give the user a full processing power from CPU and GPU as it will kill all the background unnecessary tasks, and its lockdown mode will lock on one application so that you can divert mobile's CPU power to that individual application.
3. like windows machine now it will give special short cut key for invoking in glitchy situations.
4. user can monitor daily uses of application (individual).
5. killing background tasks make phone battery life healthy and phone's processing will be faster.

VI. RESULT

- + EASY TO USE
- + PERFECT FOR PERSONAL AND PROFESSIONAL TASK
- + DEVELOPED FOR ALL API DEVICES

The outcome of using the advanced task manager will be very much like the idioms we use "prevention is better than cure". so it is the need of the hours for every android system to use this application. as we reach to the conclusion that using of this application is very much useful for saving our mobile from the lagging criteria, but at the same time we know that this application is used for solving the problem what right now we are facing, so we have to in mind that this application should be such appropriate in the content that the system should not lag behind due to this application. so this application is not too much profitable for the developer. The result is to improved ability to manage the complex task, as well as dealing with



the multiple projects that each have their own issues. Here we'll, therefore, look at the best in the task management apps and software to help make it easier to manage your system workload.

VII. CONCLUSION

1. It is a complex application to design because we need to get access to all the administrative permissions in order to get pieces of information about CPU, ram, etc. or modify any other applications with following the user's privacy policy.
2. it's very costly to develop because of its complex design and structure. developer does not get much profit out of it.
3. it's not profitable application for developer because developers can not put advertisements in the task manager application. it will slow down the performance of the task manager. task manager is for fasten the devices but if the task manager itself slow down device then there is no meaning of that application.
4. for the development of task manager application for android we have to read all the documentation of google android studio because there is no proper guidance on android application development.

The task manager application is all in one application that provides the user the transparency between system and user. it will fasten the user's phone and protect from background key loggers or malware. it will save you from unresponsive mobile hangs. it is low memory high-performance application that will boost your mobile experience in a different way. it will divert the device's 100 % processing power to one individual application.

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