**TSARIN BABBAR MANHAJAR KWAMFUTA *(Operating System)***

**Abdullahi Salihu Abubakar (Baban Sadik)**

**08021225082,** **fasaha2013@gmail.com**

[**http://fasahar-intanet.blogspot.com**](http://fasahar-intanet.blogspot.com)

**Matashiya**

Duk da yawaitar kasidu kan kwamfuta da tsarinta wajen hada alaka da ‘yar uwarta a babin sadarwa, tsawon shekaru bakwai da muka yi muna ta rubutu, bamu taba yin nazari na musamman kan babbar manhajar kwamfuta ba. Duk da cewa a wasu lokuta mukan amsa tambayoyin masu karatu kan haka, ko kuma yin ishara kan babbar manhajar kwamfuta na kamfanin *Microsoft*, wato *Windows,* amma kasida ta musamman bata taba samuwa ba a wannan shafi. Wannan yasa nayi nazari na musamman, ta la’akari da masu karatun wannan shafi wadanda a kullum suke min tambaya mai zurfi kan tsarin babbar manhajar kwamfuta musamman na kamfanin Microsoft, wato Windows, don samar da kasida ta musamman wacce za tayi bayanin tsarin babbar manhaja a ilimance, don taimaka wa galibin dalibai a wannan fanni su fahimci ilimin cikin sauki.

Bayan wannan bangare har wa yau, zan kuma kawo kasida ta musamman mai tsawo, wacce za tayi nazari mai zurfi ita ma, kan tsarin Hanyar Sadarwa ta Intanet, wato Imel kenan. Daga nan kuma zan kawo wata kasidar ta musamman ita ma da za tayi nazari mai zurfi har wa yau, kan tsarin Gajeren Sakon Waya, wato Short Message Service (SMS – Text Message). Wadannan kasidu tsarinsu zai saba wa yadda na saba rubutu kan maudu’i irin nasu wajen amsa tambayoyin da aka mini a baya. Tsari ne da zai dubi fannonin a ilimance, ta hanyar zurfafa bayanai da tabo kusan duk wani bangare mai muhimmanci da ya shafi wadannan bangarori na ilimi, kuma cikin harshe da kalmomi masu saukin fahimta. Da fatan za a kasance tare damu.

**Ma’ana da Asali**

A harshen turancin kimiyyar sadarwa ta zamani idan aka ce: *Operating System,* ana nufin babbar manhajar kwamfuta kenan, wacce ke tafiyar da dukkan ayyukan da kwamfuta ke gudanarwa. A takaice dai, ita ce rai ko ruhin kwamfutar gaba daya. Domin idan babu wannan ruhi, kwamfuta duk girmanta ba za ta iya aikata komai ba. Idan masu karatu basu mance ba, shekaru biyar da suka wuce a cikin kasida mai take: Kwamfuta da Manhajojinta, na bayyana cewa kowace kwamfuta na dauke da manyan bangarori guda biyu ne; bangaren gangar jiki da bangaren ruhi.

Bangaren gangar-jiki, wanda a harshen turanci ake kira *Hardware,* shi ne bangaren kwarangwal din kwamfutar; duk wani abin da kake gani kuma kake iya taba shi a ciki ko wajen kwamfuta, hada har da wadanda za a iya zuwa a makala mata don wasu bukatu nata. Bangaren ruhi kuma shi ne wanda ake kira *Software.* Ruhi mafi girma da kowace kwamfuta ke dauke dashi kuwa ita ce babbar manhaja, wato *Operating System.* Wannan ruhi ne ke lura da dukkan abubuwa da ayyukan da kwamfuta ke aiwatarwa. Daga lokacin da ka kunna kwamfuta zuwa lokacin kashewa, duk abin da kake gani shafinta kuma kake iya mu’amala dashi, a fili yake ko a boye, kai tsaye kake mu’amala dashi ko ba kai tsaye ba, ka sanshi ko baka sanshi ba, ruhi ne, ko manhaja ko kuma masarrafar kwamfutar. Haduwar wadannan bangarori biyu ne ke samar da kwamfuta.

Muhimmancin babbar manhaja ba abu bane da za a tsaya ana zayyanawa. Domin yadda ka san ruhin dan adam ke da muhimmanci, to haka muhimmancin babbar manhaja yake ga kwamfuta; idan babu babbar manhaja, ka share kawai.

Babbar manhajar kwamfuta ta samo asali ne tun samuwar abin da ake iya kira da suna kwamfuta irin ta zamani. Ma’ana, kwamfutoci masu aiki da wuta ko makamashin lantarki kenan. Amma kwamfutocin zaman baya wadanda ba su bukatar wutar lantarki wajen aiwatar da wani aiki, ana kiransu *Mechanical Computer* ne. Kuma daga lokacin da aka fara samar da kwamfuta mai aiki da manhaja (Software) zuwa yau, an samar da babbar manhajar kwamfuta masu dimbin yawa da ba su iya kidanyuwa saboda yawansu, da nau’untakansu, da kamaiceceniyarsu, da kuma tsarinsu. A halin yanzu ana da babbar manhajar kwamfuta sama da nau’i dari, daga kamfanoni sama da arba’in. Akwai wadanda suka kwanta dama, an daina amfani dasu, akwai kuma wadanda har yanzu ana ta bugawa dasu, sannan akwai wadanda ‘yan bana-bakwai ne; yanzu ake kan rainonsu.

Yadda aka faro da gangar jikin kwamfuta irin na zamanin da, wadanda a yanzu idan muka kallesu za mu ga sun yi wani bambarakwai; sunyi muni, haka ma tsarin Babbar manhajar kwamfuta ya faro; da launin fari da baki, babu launi, masu wuyan sha’ani, har a yau aka wayi gari kwamfutoci na dauke da manyan manhaja masu inganci, masu karfi, masu saukin mu’amala, masu kuma taimakawa wajen aiwatar da ayyuka masu dimbin yawa a lokaci daya. Wannan ci gaba ne mai girman gaske. Duk wanda ya taba amfani da kwamfutoci shekaru 20 da suka gabata zai fahimci abin da nake Magana a kai.

Babbar manhajar kwamfuta na zamanin baya yanayinsu ya danganci tsarin gangar jikin kwamfutocin zamaninsu ne. Misali, kwamfutocin farko ba su da mizani mai girma na ma’adana. Kwamfutocin shekarun 1980s misali, duk girman mizanin babbar ma’adanarsu bai wuce 10MB! Wannan yasa babbar manhajarsu (wanda galibi duk Disk Operating System – DOS – ne) suka zama kanana, wasu ma a cikin ma’adanar Floppy Disk suke. Idan ka tashi kunna kwamfuta, sai ka zura mata babbar manhajarta, da zarar ta tashi, sai ka ci gaba da amfani da ita.

Bayan kasancewar babbar manhajar karama ce sanadiyyar kankantar babbar ma’adanar kwamfutar, duk sauran masarrafai ma a cikin ma’adanar Floppy Disk suke, ba a cikin kwamfuta ba. Ba a fara samun babbar manhaja mai saukin mu’amala, wacce ake loda wa kwamfuta tun ran gini, tare da dora mata masarrafan amfani kai tsaye ba sai gab da shekarar 1990.

**Dabarun Ginawa da Habakawa**

Dabarun gina babbar manhajar kwamfuta suna da dimbin yawa, kuma su ake kira *Programming Languages* a harshen turancin kimiyyar sadarwa na zamani. Kowace babbar manhajar kwamfuta na da bangarori guda biyu ne. Akwai bangaren madarar manhajar, wanda ake kira *Kernel,* da kuma bangaren manhajar wanda mai kwamfutar ke iya gani yayi mu’amala da shi. Galibin babbar manhajar kwamfuta ana gina asalin madararsu su ne da dabarun gina manhajar kwamfuta irin su: C, da C++. Wadannan dabarun gina manhajar kwamfuta ne aka dade ana amfani dasu saboda ingancinsu da kuma sauri wajen isar da sako ga na’urar da ke dauke da manhajar da aka gina ta dasu.

Babbar manhajar Windows na kamfanin Microsoft an gina madarar manhajarta ne da C da kuma C++. Dabarar gina manhaja na C++ ya samo asali ne daga C. Haka babbar manhajar kwamfuta mai suna LINUX/UNIX, da MAC OS na kamfanin Apple, duk su ma da dabarar gina manhajar kwamfuta na C aka gina su.

Bangare na biyu na babbar manhajar kwamfuta shi ne bangaren manhajojin da mai mu’amala da kwamfutar ke iya gani tare da amfani dasu wajen baiwa kwamfuta umarni. Su kuma wadannan ana gina su ne galibi da wadancan dabarun gina manhajar kwamfuta na C da C++, da wasu kanana irin su Python (a bangaren LINUX/UNIX), da irin su: Visual Basic .Net, da C# (C Hash) – na bangaren Windows na kamfanin Microsoft. A bangaren babbar manhajar MAC OS ma haka lamarin yake; asalin madarar manhajar (MAC Kernel) an gina ta ne da dabarar gina manhaja na C.

Wannan madarar babbar manhajar kwamfuta da ake kira *Operating System Kernel* wani bangare ne mai matukar muhimmanci, kuma shi ne wanda ke taimakawa wajen isar da sakon manhajar da mai kwamfuta ke amfani dasu ga babbar cibiyar sarrafa bayanai da ke kwamfuta, wato na’ura da ake kira CPU (ko Central Processing Unit). Wadda cibiya ce dake makale a jikin kundun kwamfuta, wato Motherboard, wacce ke karbar umarni daga babbar manhajar kwamfuta don isar dashi ga bangaren gangar jikin kwamfuta ta zartar ba tare da bata lokaci ba.

Wannan ke nuna mana cewa babbar manhajar kwamfuta ce sila tsakanin mai amfani da kwamfuta da gangar jikin kwamfutar gaba daya. Ga yadda tsarin yake: idan ka kunna kwamfuta za ka ci karo da manhajojin da za su sawwake maka tsarin mu’amala da ita ne. Idan Windows ce, za ka ga shafin farko, wato Desktop, a can bangaren hagu daga kasa kuma za ka ci karo da tambarin Start, wanda ke dauke da muhimman wuraren da ke cikin kwamfutar baki daya. A nan ne za ka ga dukkan masarrafan da ke kwamfutar a jere, wadanda kasa da wadanda tazo dasu. Wannan shi ne matakin farko. Da zarar ka fara amfani da kwamfutar ta wadannan hanyoyi, sai bangaren babbar manhaja na farko, wato Madarar manhajar – Operating System Kernel – ya rika karbar umarnin da kake baiwa kwamfutar, yana mika wa babbar cibiyar sarrafa bayanai, wato CPU, don zartarwa, nan take. Kenan, akwai matakin manhajar mai mu’amala, da matakin madarar manhajar, sai kuma gangar jikin kwamfutar.

**Nau’ukan Babbar Manhajar Kwamfuta**

Duk da cewa masana sun karkasa babbar manhajar kwamfuta zuwa nau’uka daban-daban, ta la’akari da yanayi ko tsari ko zamani ko aikinta, idan muka taro wadannan kashe-kashe da suka yi za mu ga cewa a dunkule babbar manhajar kwamfuta ta kasu zuwa nau’i biyu ne.

Nau’in farko ita ce wacce ake kira “Gama-gari,” wanda kuma a harshen fannin kwamfuta ake kira “Desktop Operating System.” Wannan ita ce nau’in da muke gani a galibin kwamfutocin da muke dasu a kasuwa ko shagunan sayar da kwamfutoci, ko kuma ofisoshi da hukumomin gwamnati ko kamfanoni. Wannan nau’in babbar manhajar kwamfuta ta hada da wadda ke dauke cikin kwamfutar tafi-da-gidanka, wato Laptop, da kwamfutar kan tebur, wato Desktop.

Babbar manhajar kwamfuta ta gama-gari tana da siffofi guda uku muhimmai. Na farko shi ne: an gina ta ne musamman don amfanin mutum guda, wato “Single User.” Wannan bai hana idan kana amfani da kwamfuta mai dauke da wannan nau’in babbar manhaja ka iya kara hurumin wasu don suyi amfani da kwamfutar a sadda ba ka nan ko ka bukace su da yi. Daman kowace babbar manhajar kwamfuta kan zo ne da tsarin mai mu’amala da ita shi kadai, wato: “Administrator” kenan. Sai kuma hurumin bako, wato “Guest User Account.” Amma idan ba ka lura ba, hurumin mai kwamfutar kadai za ka rika gani. Idan kana son ganin hurumin bako, to ka shiga: “Start,” ka je “Control Panel,” sai ka matsa “User Accounts.” Wannan a babbar manhajar Windows kenan na kamfanin Microsoft. Da nace siffar babbar manhajar kwamfuta “Gama-gari” na farko shi ne bayar da damar tsarin mu’amala na mutum daya (Single User), hakan ba ya nufin ba za a iya kara wasu hurumomi ga wasu don su rika amfani da kwamfutar ba, sai dai dole ne a kowane lokaci, mutum daya ne zai zama mai amfani da ita. Mutane biyu ba su iya sarrafa ta ko wata manhaja nata a lokaci daya.

Siffa ta biyu ita ce: tana iya sarrafa manhajojin mai mu’amala da ita. Wato da zarar ka loda mata masarrafai (Applications/programs) za ta karba, ta kuma baka damar sarrafa su, ko amfani dasu. Ma’ana, ba sai lalai manhajar da tazo dasu kadai za ka iya amfani dasu ba, a a, kaima kana iya loda (Install) mata naka, muddin sun dace da mahallin babbar manhajar. Siffa ta uku ita ce: babbar manhajar kwamfuta ta “Gama-gari” na iya sarrafa bayanai a gajeren zangon sadarwa (Local Area Network). Wannan ke nuna cewa tana dauke da ka’idojin sadarwa (Communication Protocols) masu baiwa kwamfuta damar iya “magana” wajen karba ko mika bayanai ko sakonni tsakaninta da wata kwamfuta ‘yar uwarta; ciki har da iya nemo bayanai daga Intanet.

Misalan babbar manhajar kwamfuta ta Gama-gari sun hada da: *Windows 3.0,* da Windows 95, da Windows 98, da Windows 2000, da Windows Millennium Edition, da Windows XP, da Windows Vista, da Windows 7, da kuma Windows 8. Wadannan a bangaren kamfanin Microsoft kenan. A bangaren kamfanin Apple kuma akwai babbar manhajar MAC OS X. A bangaren babbar manhajar Linux da UNIX kuma akwai Ubuntu, da Kubuntu, da Lubuntu, misali. Wadannan su ne kadan daga cikin misalan da suka kebanci babbar manhaja ta Gama-gari, wato “Desktop Operating System.” Su an gina su ne don amfanin gama-garin jama’a, wadanda ba kwararru ba a fannin mu’amala da kwamfuta.

Nau’in babbar manhaja ta biyu kuma ita ce “Na Zangon Sadarwa,” wato “Network Operating System” kenan a harshen fannin kwamfuta. Ita wannan babbar manhajar kwamfuta ta zangon sadarwa, an gina ne musamman don aiwatar da sadarwa a tsakanin kwamfutar da ke dauke da ita da sauran kwamfuta irinta ko kuma “Gama-gari.” Ire-iren wadannan babbar manhajar kwamfuta ba kowa ke iya sarrafa su ba, saboda suna dauke ne da wasu manhajoji ko masarrafai na musamman wadanda sai kwararru ke iya mu’amala da su. Galibin kwamfutocin da ke dauke da shafukan yanar gizo a Intanet, duk suna dauke ne da wannan nau’in babbar manhaja. Domin daman fagensu kenan; aiwatar da sadarwa cikin sauki, da inganci, da kuma nagarta.

Su kuma nau’in babbar manhaja ta Zangon Sadarwa, suna da siffofi guda hudu ne da ke sa a gane su. Siffa ta farko ita ce: mutane sama da daya na iya amfani da ita ko wani bangarenta a lokaci guda. Wannan tsari shi ake kira “Multi User System.” Saboda babbar manhajar na da wannan tsari a tare da ita. Tsari mafi muhimmanci da ke taimaka wa babbar manhajar kwamfuta mai wannan dabi’a kuwa shi ne tsarin “Active Directory” a bangaren Windows kenan. Wannan tsari na “Active Directory” wata rajista ce mai daukan hurumin masu iya mu’amala da babbar manhajar da yawa a lokaci guda. Tana iya daukan hurumomin masu mu’amala (User Accounts) sama da dubu ashirin a lokaci daya. Misali, a babbar ma’aikata guda ana iya shuka kwamfuta guda daya mai dauke da babbar manhajar zangon sadarwa, wato “Network Operating System” wacce a cikinta za a samar wa dukkan wani ma’aikaci hurumi (User Account), wanda a duk sadda ya kunna kwamfutarsa dake jone da wannan kwamfuta, nan take zai fara mu’amala da bayanan da ke dauke cikinta.

Siffa ta biyu ita ce: babbar manhajar kwamfuta na zangon sadarwa tana iya sarrafawa tare da tafiyar da manhajojin mai mu’amala masu dimbin yawa a lokaci guda. Misali, tana iya raba bayanan da ke cikinta ga dukkan masu jone da ita, a lokaci guda kuma masu adireshin Imel da ke taskance a cikinta sun shiga suna fita, wajen budowa ko aika sakonnin Imel tsakanin ma’aikatar da suke ko wajenta. Siffarta ta uku ita ce: tana da karfi da kuzari da juriya wajen aika da aiwatar da umarni. Wannan babbar manhaja tana iya jure wahala da cin kwakwa a fagen sadarwa – wajen mika bayanai ko karbarsu ko sarrafa su – irin jurewar da babbar manhajar Gama-gari ba ta iya yi. Misali, kana iya samun kwamfuta mai babbar manhajar zangon sadarwa a kunne tana ta aiki, tsawon watanni shida, wata ma tana iya kai shekara a kunne ba a taba kashe ta. A duk wannan lokaci kuma ta gudanar da aiki ne, ba zaune take zaman dirshan ba. Duk kwamfutocin da ke dauke da shafukan yanar sadarwa haka suke. Shi yasa ma kowa ke iya shiga da fita cikin shafukan da suke dauke dasu dare da rana safe da yamma; domin a kunne suke da’iman. Da zarar an kashe su, to, ba za ka iya kaiwa ga bayanan da ke dauke a cikinsu ba.

Siffa ta karshe ita ce: tana da kariya na musamman, wajen kare bayanan da ke cikinta, da kariya ga dukkan kafofin sadarwarta. Domin wannan shi ne babban marabi tsakaninta da babbar manhajar Gama-gari, musamman babbar manhajar zangon sadarwa nau’in Linux/UNIX. Tana da manhajoji da tsare-tsare (Configuration Settings) na musamman da ke taimaka mata wajen kare duk bayanan da take dauke dasu, da wadanda take karba daga wasu kwamfutoci, da wadanda kuma take mikawa.

Misalan wasu daga cikin babbar manhajar zangon sadarwa sun hada da: Windows Server 2000, da Windows Server 2003, da Windows Server 2008, da Windows Server 2012. Wadannan duk na kamfanin Microsoft ne. A bangaren kamfanin Norvell kuma akwai: Norvell Netware. Wannan ita ce babbar manhajar zangon sadarwa da fi kowanne shahara a duniya. Domin tun shekarun 1980s ake amfani da ita. A bangaren nau’in Linux/UNIX kuma akwai: Red Hat, da Caldera, da SuSE, da Debian, da Slackware, sai kuma Free BSD, da BSD.

Wadannan nau’ukan babbar manhajar zangon sadarwa suna da matukar muhimmanci sosai, domin su ne hakikanin kwamfutoci, kuma dasu ne kamfanoni da hukumomi da jami’o’i da gwamnatoci ke dogaro wajen adana bayanai, da kuma yada su; a gajeren zangon sadarwa ne (LAN), ko a faffadar zangon sadarwa (Wide Area Network) ko kuma a giza-gizan sadarwa ta duniya ne, wato World Wide Web.

Galibin ire-iren wadannan babbar manhaja ma kanzo a sake cikin manyan kwamfutoci. Kamfanin kera kwamfuta da yafi shahara wajen kera kwamfutoci masu dauke da irin wannan babbar manhaja kuwa shi ne kamfanin IBM (International Business Machines) na kasar Amurka. Wannan tsohon kamfani ne sosai, kuma yana cikin kamfanonin da suka fi tasiri wajen habbaka harkar sadarwa ta zamani a duniya baki daya. Ya kera kwamfutoci tafka-tafka masu dauke da babbar manhajar zangon sadarwa (Network Operating System Servers) masu matukar tsada, wadanda idan ba kaisatattun kamfanoni ko hukumomin gwamnatin kasashe masu arziki ba, babu mai iya sayensu. Daga ciki akwai jerin Blue Gene da ya kera a shekarun baya, irin su Blue Gene/L, da Blue Gene/P, da kuma Blue Gene/Q. Wadannan, kafin shekarar 2012 ta kare, su ne kwamfutocin da suka fi kowace kwamfuta tsada a duniya.

Amma ya zuwa karshen shakarar 2013, an samu wata kwamfuta mai dauke da babbar manhajar zangon sadarwa da taskance bayanai da hukumar kasar Sin (China) ta kera. Wannan kwamfuta mai dauke da wannan nau’in babbar manhaja mai suna Tianhe-2, a halin yanzu ita ce tafi kowace kwamfuta tsada a duniya. Tana dauke da babbar manhajar Kalyn Linux ne, kuma ma’adanarta wajen Terabyte dubu goma shabiyu da dari hudu ne (12,400TB), wato Perabyte goma sabiyu da digo hudu kenan (12.4PB). Kuma tana bukatar makamashin wutar lantarki da karfinsa ya kai MegaWatt 18 ne (17.8 MG). Ba nan ta tsaya ba, an kiyasta farashinta ta kai dalar amurka miliyan dari uku da tamanin ($380 million), wanda yayi daidai da kudin Najeriya nai biliyan sittin da miliyan dari takwas da tamanin da takwas kenan (N60,880 billion). Trikashi! Wani aikin sai masu kahon susa. Wannan zunzurutun kudi duk na kwamfuta daya ce, rak. An gina ta ne musamman don gudanar da binciken ilimi (kimiyya, da sadarwa, da karantarwa, da likitanci, da zamantakewa, da siyasa, da noma da sauransu).

Wadannan su ne nau’ukan babbar manhajar kwamfuta guda biyu muhimmai da ake dasu a halin yanzu. A mako mai zuwa za mu dubi siffofi ko dabi’un babbar manhajar kwamfuta a jimlace. Mu hadu mako mai zuwa.

**Muhimman Ayyukan Babbar Manhaja**

A baya masu karatu sun ji bayanai kan nau’ukan babbar manhaja guda biyu muhimmai da ake dasu a duniya, da irin siffofin kowacce daga cikinsu. Wannan zai taimaka wa mai karatu gane kowacce daga cikinsu a duk sadda yaci karo da kwamfuta, ko ma ya sani nashi. Bayan haka, siffofin da na zayyana ya kebance wadda ke dauke da siffofin ne.

A daya bangaren kuma, kowace babbar manhajar kwamfuta na aiwatar da muhimman ayyuka guda hudu ne, a talakance. Ma’ana, duk lalacewar babbar manhajar kwamfuta, dole ne a same ta tana iya aiwatar da wasu ayyuka guda hudu da bayaninsu zai zo nan kadan. Rashin iya gudanar da daya daga cikinsu kadai na nuna bata cika ka’idar zama babbar manhajar kwamfuta bane ko kadan. Don haka sai mu kiyaye, mu natsu don fahimtar wadannan muhimman ayyuka. Idan ka saba amfani da kwamfuta ko da na tsawon wata guda ne, ya kamata ka iya tantance wadannan ayyuka nata. Wadannan bayanai za su zo ne a fayyace. Allah mana jagora, amin.

**Alaka da Gangar-jikin Kwamfuta**

Babban aiki muhimmi na farko da kowace babbar manhajar kwamfuta ke gudanarwa shi ne hada alaka tsakaninta da gangar-jikin kwamfutar, ko kace kwarangwal; wato *Hardware* kenan. Fahimtar hakan ba abu bane mai wahala ko kadan, amma akwai sarkakiya a cikinsa. Tabbas abu ne sananne cewa daya daga cikin ayyukan ruhin dan adam shi ne hada alaka tsakaninta da gangar-jiki baki daya. A bangaren babbar manhajar kwamfuta na yin hakan ne ta hanyoyi kamar haka:

Hanyar farko ita ce ta hanyar wasu kananan masarrafai da kowace na’urar sadarwa ke zuwa da ita, wadanda ke basu damar musayar bayanai tsakaninsu da kwamfuta. Wadannan kananan masarrafai su ake kira “Device Drivers” a harshen Turanci. Duk wata na’urar sadarwa ta zamani – irin su wayar salula, da ma’adanar filash, da babbar ma’adanar kwamfuta, da talabijin kwamfuta da sauransu – duk suna zuwa ne da wadannan kananan masarrafai. Da zarar ka makala su a jikin kwamfutarka, nan take za ka ga ta ce maka: “Installing Device Drivers.” Idan babbar manhaja ta gama loda wadannan masarrafai, sai ta sanar dakai. Daga nan sai kaci gaba da amfani da na’ruar. Babbar manhaja takan yi wannan aiki ne a karon farko idan ka loda mata kowace irin nau’urar sadarwa don musayar bayanai ko kallon wasu abubuwa. Manufar yin hakan shi ne don ta samu cikakken bayani kan suna da nau’in wannan na’urar da aka shigar mata.

Bayan haka, ba wai abubuwan da ake iya makala wa kwamfuta kadai ba, hatta wasu masarrafai ko manhajoji da muke amfani dasu a kwamfuta, duk suna da ire-iren wadannan masarrafai masu suna “Drivers” ko “Jami’ai” kamar yadda nake ambatonsu. Haka a duk sadda kwamfutarka ta kasa kamo tashar Intanet bayan ka sa mata Modem a misali, ko ta kasa fitar da sauti bayan kayi kokarin kadawa, ko ta daina nuna hoton bidiyo, alhali kana da masarrafar da ke iya nuna bidiyon lafiyar kalau, to za ka samu matsalar duk ta rashin wadannan “Jami’ai” ne, wato Drivers. Idan kana son gano haka, ka je “Start”, sai ka hau kan “Computer” ka matsa bangaren daman beran kwamfutarka, wato “Right-Click” sai ka je “Properties” can karshe kenan; ka matsa. Idan shafi ya budo, sai ka lalubo “Device Manager” daga can bangaren hagu a sama, ka matsa.

Shi “Device Manager” wani bangare ne mai matukar muhimmanci, wanda ke dauke da dukkan kananan manhajojin kwarangwal din kwamfutar baki daya, da duk wani abin da ke iya hada alaka tsakanin kwamfutar da wata kwamfutar. Za ka ga jerinsu tare da sunan kowannen, daga sama zuwa kasa. Duk inda ka ga tambarin alamar tambaya (Question mark) mai launin rawaya, to, na’urar da ke dauke da wannan tambari ta samu matsala kenan. Ma’ana, babu “Driver” dinta kenan, ko kuma akwai amma ya samu matsala sanadiyyar wata manhaja da ka saukar, wacce bata dace da babbar manhajar kwamfutar ba. Wannan ke nuna mana cewa, babbar manhajar kwamfuta ce ke hada alaka tsakanin manhajojin dake dauke a kanta, da kwarangwal din kwamfutar baki daya. Ba wannan ba kadai, ita ce ke hada alaka ta hanyar sadarwa, tsakanin mai mu’amala da ita, da ainihin kwarangwal din kwamfutar, kamar yadda bayani ya gabata makonnin baya.

Hanya ta biyu na samuwa ne ta tsarin “Plug and Play” ko “PnP” a gajarce. Wannan shi ne tsarin da ke tabbatar da alaka tsakanin kwamfuta da duk wani abin da aka makala mata na sadarwa – musayar bayanai wajen shigarwa ko karba. Tsarin “PnP” wani ginannen tsari ne da kamfanin Microsoft ya fara gina shi tun a babbar manhajarsa mai suna “Windows 95,” babbar manhajarsa ta farko da ta fara yin fice, kafin nau’in Windows XP ta maye gurbinta. Tun sannan kamfanin Microsoft ke dada inganta wannan tsari, don taimaka wa masu mu’amala da kwamfutar da ke dauke da Babbar manhajar Windows iya mu’amala da bayanan da suke son shigar wa kwamfutar, kai tsaye. Yadda tsarin yake shi ne, da zarar ka soka ma’adanar filash (Flash Drive) a jikin kwamfutarka misali, nan take babbar manhaja za ta tsara (Configure) wannan ma’adana, sannan tana iya budo maka abin da ke dauke cikinta (Autoplay) na bayanai nan take (kana iya hana ta yin hakan a bangaren “Control Panel” don kare ta daga kwayoyin cutar kwamfuta masu shigar da kansu nan take da zarar babbar manhaja ta karbi ma’adanar da aka shigar mata). Wannan tsari na “Plug and Play” na da alaka ne na kai tsaye da babbar titin sadarwa da ke jikin kundun kwamfuta, wato “Computer Bus.”

Hanya ta uku da babbar manhajar kwamfuta ke hada alaka a tsakaninta da gangar-jikin kwamfuta shi ne ta rumbun adireshin masarrafai, wato “System Registry” kenan. Wannan cibiya babbar matattara ce dake dauke da bayanin inda kowace manhaja ko masarrafa ke ajiye a kwamfutar. Idan kana son fahimtar wannan rumbu ka dubi bangaren adana bayanan ma’akatan gwamnati ko hukumomi, wato “Registry.” A wannan wuri ne jakar bayanin sirrin (Secret File) na kowane ma’aikaci yake. Da zarar ka loda (Install) wa kwamfutarka sabuwar manhaja ko masarrafa (Application/Software), babbar manhaja za ta taskance adireshin inda wannan manhaja da ka loda take. Ba manhaja kadai ba, hatta na’urar da ka jona wa kwamfutarka, ko da kuwa sau daya ne, nan take babbar manhaja za ta adana suna da lambar wannan na’urar da ka jona wa kwamfutarka. Da zarar ka sake jona mata a karo na biyu, nan take za ta fahimci cewa a baya an taba loda mata shi, ba sai ta sake neman loda ‘yar karamar masarrafar da ke dauke a na’urar ba, wato “Driver.” Wannan runbum adireshin bayanai na dauke ne da adireshin duk wani abu da ke tattare da kwamfuta; masarrafa ce, manhaja ce, ko na’ura ce da ke makale a jikinta ko ake jona mata lookaci-lokaci.

Idan kana son ganin wannan rumbun adireshin manhajoji da na’urori, ka je “Start” (idan Widnows 7 ce, ko kasa ta ita), sai ka rubuta “regedit” ka matsa “Enter” nan take za a budo maka. Amma fa ba za ka iya fahimtar komai a ciki ba idan ba kwararre bane kai. Domin lambobi ne da wasu kalmomi da kwararru ne kadai ke iya saninsu, a makare a ciki.

Wannan shi ne aiki mai muhimmanci na farko da babbar manhajar kwamfuta ke yi; wato hada laka tsakaninta ko tsakaninka da gangar-jikin kwamfutar baki daya. Domin wannan shi ne abin da ke tabbatar da matsayinta da a baya nace: “Babbar manhajar kwamfuta ce ke tafiyar da kwamfutar baki daya.” Ka ga kuwa idan ya zama ba ta iya hada alaka tsakaninka ko tsakaninta da gangar-jikin kwamfutar, ba kanta kenan, wai Dansanda ya rasa idanu.

**Tsara Bayanan Manhaja**

Wannan aiki ne ja, inji mutan dan ja. Domin abin da hakan ke nufi kuwa shi ne, duk wata manhaja da ke cikin kwamfutar, aikin babbar manhaja ne ta tanadi wurin adana bayanan da suka shafe ta, sannan ta tsara bayanan, ba wai tanada musu mahalli kadai ba. Misali, idan ka loda wa kwamfutarka manhajar sauraron sauti ko kallon bidiyo mai suna VLC Media Player, babbar manhaja ce za ta loda wannan manhaja a cikin ma’adanar kwamfutar, sannan bude burgamin adana bayanai (Folder) na musamman, da sunan manhajar, ta zuba dukkan bayanan da manhajar ke dauke dasu. Ba wai na sauran manhajoji kadai ba, hatta ita kanta babbar manhaja, a sadda ake loda wa kwamfutar, da kanta ta kirkiri mahallin da za ta rika ajiye bayanan da suka shafe ta.

Wannan tsari ko aiki na adana bayanan manhaja, tare da tsara su a wuri guda don baiwa mai mu’amala damar amfani dasu a duk sadda ya tashi yi, shi ake kira “File Structure.”

Kamfanin Microsoft na da tsarin adana bayanan manhaja iri biyu, tun sadda ya fara kirkirar babbar manhajar kwamfuta. Tsarin farko, wanda a halin yanzu ya daina amfani dashi, shi ake kira “File Allocation Table” ko “FAT” a gajarce. Akwai nau’ukansa da dama, irin su: “FAT,” da “FAT16,” da “FAT32” da dai sauransu. Tsari ne da ke la’akari da girman mizanin babbar ma’adanar kwamfuta, da girman mizanin babbar maanhaja, wajen adanawa da kuma tsara jakunkunan bayanai da suka shafi masarrafa da dukkan karikitan da ke cikin kwamfuta mai dauke da babbar manhajar Windows. Nau’i na biyu kuma shi ake kira “New Technology File System” ko “NTFS” a gajarce. Wannan tsari ya fi nau’in farko inganci, saboda ya fi daukan bayanai masu dimbin yawa a ma’adana, kuma kamfanin Microsoft ya fara amfani dashi ne a babbar manhajar Windows XP, zuwa Windows Vista, da Windows 7, sai kuma nau’in Windows 8 da ake yayi a halin yanzu.

Idan mai karatu na son ganin da fahimtar yadda babbar manhajar kwamfuta musamman nau’in Windows ke adana bayanan masarrafai ko manhajojin da ke dauke a cikinta, ya shiga: “Computer” ko “My Computer”, ya je ma’adanar “Ma’adanar C” ya budo. Da zarar ya bude, zai ci karo da burgamin bayanai (Folder) mai suna: “Program Files.” Wannan shi ne ke dauke da dukkan masarrafai ko manhajojin da ke cikin kwamfutar, wadanda basu shafi babbar manhaja ba kai tsaye. Kada ya kuskura ya goge ko daya daga cikinsu, domin duk wanda aka goge, to manhajar da abin da ya shafa ba za taba iya budewa ba; ya goge ta kenan gaba daya. Idan yana son ganin wadanda babbar manhajar ta kirkira na kanta kuma, sai ya gangara can kasa, zai ci karo da burgamin bayanai (Folder) mai suna: “Windows.” Idan ya budo nan zai ga dukkan bayanan da suka danganci babbar manhajar. Su wadannan bayanai da zarar ya goge su, to kwamfutar ma ba za ta kara iya tashi ba. Ya kashe ta kenan kurmus, sai an mata sabon zubi. Sai a kiyaye.

A mako mai zuwa zan kawo ragowar muhimman ayyukan babbar manhajar kwamfuta. Da fatan mai karatu zai samu lokaci na musamman ya bincika wadannan bayanai da ya karanta a wannan mako, idan yana da kwamfuta kenan. Wannan zai sa ya samu karin fahimta daga kalmomin da suka gabata.

**Samar da Hanyoyin Mu’amala da Kwamfuta**

Babban aikin babbar manhajar kwamfuta na uku shi ne samar da hanyoyin mu’amala da kwamfutar, tsakaninta da mai mu’amala kenan. Wannan shi ake kira “User Interface.” Duk lalacewar babbar manhaja bai kamata a ce ba ta dauke da hanyar mu’amala tsakanin kwamfuta da mai kwamfutar ba. In kuwa haka ta kasance, to gwamma babu da ita. Wannan na daga cikin tsare-tsare masu mahimmanci a tare da kwamfuta; daga kwamfutocin zamanin baya zuwa na zamanin yau.

Kowace Babbar manhajar kwamfuta a zamanin yau na dauke ne da hanyoyin mu’amala tsakanin kwamfuta da mai kwamfutar, nau’uka biyu. Nau’in farko shi ake kira “Command Line Interface” ko “CLI” a gajarce. Nau’i na biyu kuma ana kiransa “Graphical User Interface” ko “GUI” a gajarce. Ga takaitattun bayanai nan kan kowannensu.

*Tsarin “Command Line Interface”*

Tsarin farko da ake kira “Command Line Interface” ko “CLI,” hanyar mu’amala da kwamfuta ce da ta kunshi baiwa kwamfuta umarni ta hanyar wata ‘yar karamar masarrafa da tafi saurin isar da sako ga kwamfuta nan take. Wannan masarrafa ko manhaja kashi-kashi ce; ya danganci babbar manhaja. Kowace Babbar manhaja na da nata masarrafa na musamman mai dauke da wannan tsari mai suna “Command Line Interface.” Misali, na Babbar manhajar “Windows” ita ce “Command Prompt.” Idan kana son ganin wannan masarrafa ka matsa “Start”, sai ka rubuta cmd, sannan ka matsa “Enter” a jikin allon shigar da bayananka. Nan take wannan masarrafa za ta budo. Baka ce, mai bakin shafi, dauke da rubutu masu farin launi.

Asalin wannan masarrafa ta “Command Prompt” dake dauke a babbar manhajar Windows a yau, ta fara samuwa ne a tare da Babbar manhajar kamfanin Microsoft na farko mai suna “Microsoft Disk Operating System,” wato “MS-DOS.” Don haka, duk wanda ya taba amfani ko mu’amala da wancan tsohuwar Babbar manhaja mai suna MS-DOS, zai iya mu’amala da manhajar Command Prompt dake cikin Windows na yau. Duk tsarin daya ne. Ba ma wannan ba, wancan Babbar manhaja ta MS-DOS tsarin mu’amala da mai kwamfuta daya kawai take dauke dashi, shi ne wannan tsari na “Command Prompt.” Shi yasa da zarar ka kunna kwamfuta mai dauke da MS-DOS, wannan bakin shafi za ka fara cin karo dashi; ta nan za ka ta baiwa kwamfutar umarni, hatta kashewa.

Babbar manhajar kwamfuta nau’in LINUX, da UNIX, da MAC OS X su kuma suna amfani ne da masarrafa mai suna “Terminal” (akwai LINUX Terminal, da UNIX Terminal da MAC OS Terminal) wacce kusan kashi tamanin cikin dari na masu amfani da ire-iren wadannan nau’in Babbar manhaja na amfani ne da ita. Wannan ya faru ne saboda tun asali, wannan masarrafa ita ce abin dogaro wajen mu’amala tsakanin kwamfuta da mai kwamfutar. Bayan wadannan guda biyu akwai wadanda wasu suka gina wadanda suka dace da Babbar manhajar LINUX da UNIX da kuma MAC OS X na kamfanin Apple kenan.

Kamfanonin da suka samar da wadannan hanyoyin mu’amala na “Command Line Interface” sun kuma samar da kalmomi ko yaren da ake amfani dasu wajen baiwa kwamfutar umarni ta hanyar Babbar manhajar da ke dauke a cikinta. Misali, idan ka shiga masarrafar “Command Prompt” na Windows za ka samu kanka ne tsundum a cikin huruminka. Misali, idan sunan huruminka (User Account Name) “Baban Sadik” ne, da zarar ka budo za ka ga: C:\user\Babansadik> Wannan ke nuna cewa kana hurumin “Baban Sadik” kenan. Idan kana son komawa asalin babbar ma’adanar kwamfuta gaba daya, wato “Drive C:” sai ka rubuta: cd / wannan umarnin zai kai ka babbar ma’adana kai tsaye. Idan kuma a tsakanin huruminka ne kake son shiga wani wuri na musamman, misali jakar da ke dauke da hotunanka, wato “Pictures,” sai ka rubuta: dir Pictures nan take za a budo maka sunayen dukkan hotunan da ke cikin burganin. Idan kana son ganin dukkan bayanan dake shafin kwamfutarka ne, ka rubuta dir Desktop. Idan kuma so kake ka koma farkon shafin ne gaba daya, ka rubuta: cd Desktop. Duk wadannan kalmomi ne na umarni. Akwai karin wasu masu dimbin yawa wadanda ke taimaka wa mai mu’amala da kwamfuta yayi zirga-zirgansa daga nan zuwa can. Haka ma abin yake a bangaren masarrafar “LINUX Terminal” ko “UNIX Terminal” ko “MAC OS X Terminal.” Darasi ne mai zaman kansa.

Wannan tsarin mu’amala da mai kwamfuta na farko kenan da Babbar manhajar kwamfuta na zamani ke dauke dashi. Ga bayani kan tsari na biyu nan, wato “Graphical User Interface,” wato “GUI.”

*Tsarin “Graphical User Interface”*

A tsarin “Graphical User Interface,” Babbar manhajar kwamfuta na baiwa mai mu’amala da kwamfuta damar ba ta umarni ne ta hanyoyi masu sauki fiye da tsarin “Command Line Interface.” A wannan tsari za ka matsa wata alama ce (icon), sai kwamfuta ta zartar maka da abin da kake bukata. Wadannan alamomi (Icons) suna nan da yawa; da zarar ka kunna kwamfutar ta zamani mai dauke da Babbar manhaja irin na zamani, a shafin farko (Desktop) ba abin da za ka ta cin karo dasu sai wadannan alamomi. Kowanne za ka same shi da sunansa. Duk wata alama da ka gani a shafin kwamfuta, daga sama ne ko kasa, daga gefen dama ko hagu (ya danganci tsarin Babbar manhajar) da zarar ka matsa, ko ka latsa, ko ka zungure ta, nan take kwamfuta za ta zartar da umarnin da ka bata. Idan manhaja ce ka matsa, manhajar za ta budo; idan jakar bayani ce ka matsa (File), nan take jakar da ke dauke da bayanin za ta budo maka bayanin – in hotuna ne nan take za ka gansu, in kasidu ne ko makaloli, za ka gansu, in kuma bayanai ne masu dauke da sauti ko hoton bidiyo, nan take sai manhajar sarrafa su ta budo ta kama aiki.

Wannan tsari na “Graphical User Interface” na cikin manyan dalilan da suka kara wa kwamfuta shahara, da saukin mu’amala, da kuma inganci wajen sarrafa bayanai. Wannan tsari ke gudanuwa ne ta hanyar alamomi ko hotunan ishara (icons or graphical windows). Wadannan alamomi ko “Icons” nau’i biyu ne. Akwai na hakikanin manhaja ko jakar bayanai. Sannan akwai alamu masu wakiltar manhaja ko jakar bayanai, su ake kira “Shortcut Icons.” Kowanne daga ciki idan ka matsa zai budo maka manhajar ce ko jakar bayanin da yake wakilta.

Kamfanin Apple ne ya fara amfani da wannan tsari a kwamfutarsa ta MACINTOSH nau’in farko mai suna “Mac 128k.” Daga nan sauran kamfanonin gina Babbar manhajar kwamfuta irin su Microsoft suka ara, har zuwa wannan zamani da muke ciki.

Akwai matakai biyar da wannan tsari ke dauke dasu, tsakanin mai mu’amala da kwamfuta da kwamfutar kanta. Matakin farko shi ne mai mu’amala da kwamfutar, wato “User” kenan. Kai kenan ko duk wanda ke mu’amala da kwamfutar. Mataki na biyu shi ne hoton ishara ko alamar da za ka matsa don baiwa kwamfutar umarni. Wannan shi ake kira “Graphical Interface” kamar yadda bayani ya gabata. Sai mataki na uku, wato “Ma’adanar bayanan hotunan ishara,” wato “Display Server,” wadda wata ma’adana ce da Babbar manhaja ke dauke da ita, wacce ke taskance dukkan wasu alamomi da ke tsayawa a matsayin adireshin manhaja ko jakar wasu bayanai da mai kwamfutar zai yi mu’amala dasu. Mataki na hudu ita ce “Madarar babbar manhaja,” ko “Operating System Kernel” kamar yadda bayani ya gabata. Wannan shi ne bangaren babbar manhaja wanda mai mu’amala da kwamfuta ba ya iya ganinsa kai tsaye, kuma shi ne ke da alhakin sadar da umarnin da kake baiwa kwamfuta ga gangar-jikin kwamfuta (Hardware), don zartarwa. Mataki na karshe shi ne gangar-jikin kwamfutar, wanda bayani ya gabata kansa.

Da zarar ka matsa wata alama da ke dauke da umarni don aiwatar da wani aiki na musamman a kwamfuta, nan take sakon da ke dauke a cikin ma’adanar hotunan ishara (Display Server) za su aiwatar da wannan umarni naka zuwa ga bangaren babbar manhajar kwamfuta da ke sadar da bayanai ga gangar-jiki, wato “Operating System Kernel.” Wannan bangare ne zai dauki wannan umarni naka takanas ta kano zuwa ga cibiyar sarrafa bayanai dake kundun kwamfuta, wato “Central Processing Unit” ko “CPU,” don zartarwa kai tsaye. Duk wannan aiki ko ayyuka na samuwa ne cikin kasa da dakika guda bayan ka matsa alamar dake dauke da umarnin, saboda kudurar karfin sarrafa bayanai da kwamfuta ke dauke dashi.

Wadannan su ne hanyoyi biyu da Babbar manhaja ke bi wajen baiwa mai mu’amala da kwamfuta damar bata umarni da sarrafa bayanan da ke kai-komo tsakaninsu. Kuma kamar yadda bayani ya gabata a farko, wannan shi ne aiki muhimmi na uku da Babbar manhaja ke aiwatarwa. A mako mai zuwa za muyi bayani kan aiki na hudu muhimmi, wanda shi ne aiki na karshe da suka kamaci kowace irin Babbar manhaja ce.

**Samar da Tsarin Lura da Manhajoji**

Wannan shi ma daya ne babban aikin kowace Babbar manhajar kwamfuta ta zamani. Shi ne aiki na hudu muhimmi, wanda dole ne kowace Babbar manhajar kwamfuta ta sifatu dashi, tare da aiwatar dashi cikin sauki, babu matsala.

Wannan aiki na “Samar da tsarin lura da manhajoji” abu ne mai mahimmanci musamman wajen samar da kyakkyawar tsarin rayuwar kwamfutar gaba daya, ciki har da kyautata tsarin mu’amala tsakanin kwamfuta da mai kwamfutar, a duk sadda ya tashi sarrafa ta. Kuma kamar yadda bayani ya gabata a baya, bayan an loda wa kwamfuta babbar manhajarta, wato “Operating System,” duk wata manhaja ko masarrafa (Application) da aka zo loda mata daga baya, to, aikin Babbar manhaja ne ta karbi wannan manhaja, ta samar mata da wurin zama, sannan ta shigar da bayanan wannan bakuwar manhaja ko masarrafa cikin rumbun adireshin manhajojin da ke kwamfutar baki daya. Wannan zai sa a duk sadda mai mu’amala da kwamfuta ya tashi amfani da wannan masarrafa ko manhaja, da zarar ya kira ta, kwamfuta za dauko masa nan take.

Kamar yadda nace da farko, aikin samar da tsarin lura da manhajoji daya ne daga cikin mahimman ayyukan babbar manhaja. Kuma takan yi hakan ne ta hanyoyi guda biyu shahararru. Hanyar farko ita ce ta hanyar samar wa kowace manhaja mahallin gudanuwa, a duk sadda mai mu’amala da kwamfuta ya bukaci amfani da wata manhaja ta musamman daga cikin jerin manhajojin dake kwamfutar. Hanya ta biyu kuma ita ce ta hanyar aiwatar da sadarwa tsakanin ita babbar manhajar da sauran manhajoji ta hanyar tsarin fahimtar dacewar manhaja da mahallin babbar manhajar. Wannan tsarin fahimtar dacewar manhaja da babbar manhaja shi ake ira “Application Programming Interface,” ko “API” a gajarce. Ga bayanin kowanne a fayyace.

*Samar da Mahallin Gudanuwar Manhaja*

Bayan kwamfuta, ta hadin gwiwa da babbar manhaja ta bayar da damar loda (Installling) wata manhaja a samar babbar manhajar da ke kwamfutar, don baiwa mai kwamfutar damar gudanar da ayyukansa cikin sauki, har wa a yau, a duk sadda mai kwamfutar ya kira wannan manhaja da ya loda don gudanar da wani aiki na musamman da ita, aikin Babbar manhaja ne ta samar wa wannan bakuwar masarrafa wani mahalli na musamman da za a zaunar da ita don yin aikinta, kafin a karshe a koma da ita inda bayananta ke ajiya.

Mahallin da babbar manhaja ke amfani dashi don samar wa kowace manhaja mahallin gudanar da ayyukanta kuwa ita ce “Ma’adanar wucin gadi,” wato “Random Access Memory” ko “RAM” a gajarce. Wannan ma’adana ce da ake makala wa kwamfuta a kundunta, kuma yana zuwa ne mizani-mizani. Ma’adanar RAM na da muhimmanci a rayuwar kwamfuta gaba daya, kuma shi ne babban ginshikin Babbar manhajar kwamfuta, wajen taimaka mata aiwatar da ayyukanta. Sannan kuma mahalli ne mai zaman kansa, mai tallafa wa babbar ma’adanar kwamfuta (Hard Disk Drive) wajen daukan nauyin inda za a ajiye masarrafai ko manhajoji don yin aiki dasu a yayin da aka dauko su daga inda suke ajiye a babbar ma’adanar.

Da zarar ka kunna kwamfuta ko baka fara aiki da ita ba, akwai kananan masarrafai masu taimaka wa babbar manhaja lura da abubuwan da ke gudanuwa a kwamfutar gaba dayanta. Ire-iren wadannan masarrafai ba kowa ke iya ganinsu ba, don ba a fili suke ba. Sai in kwararre ne kai ko kuma an gaya maka yadda za ka yi ka gansu. Akwai wadanda suka kebanci babbar manhaja ne zalla, a tare da ita suke, kuma su ne masu lura da sauran manhajojin da ke kwamfutar gaba daya, da yadda suke aiki, da yawan mizanin da suke dauka daga Babbar ma’adana ko ma’adanar wucin-gadi (RAM). Daga cikinsu akwai *Process,* da kuma *Services.*  Wadannan jami’ai ne na Babbar manhaja, kuma suna da amfani sosai ga wanda ya sansu.

Sai nau’in manhajoji na biyu wadanda suka kebance mai amfani da kwamfutar, wato *User Applications.* Wadannan gungun masarrafai Babbar manhajar kwamfuta na farkar da sune da zarar an kunna kwamfutar, saboda bukatarsu da ake yi wajen mu’amala. Wadannan su ake kira *Start-up Programs.* Galibinsu ana farkar dasu ne don samun mu’amala da manhajar da ke dauke dasu a duk sadda aka kira su. Idan mai karatu na son ganin ire-iren wadannan masarrafai, ya dora manunin beran kwamfutarsa (Mouse Pointer) a kan layin da ke kasa a shafin kwamfutartsa, wato *Taskbar,* sai ya matsa bangaren dama na beran kwamfutartsa (Right click), sai ya zabi *Task Manager;* nan take zai budo.

Shi *Task Manager* shi ne mai lura da dukkan manhajojin da ke farke a kwamfuta baki daya. Duk wani abin da ya shafi rayuwar wadannan manhajoji da babbar manhaja ke farkar dasu a sadda aka kunna ta, daga bayanin lokacin da aka farkar dasu (start-up time), zuwa lokacin da aka kashe su (stop time), da mizanin da suke daukawa a ma’adanar wucin-gadi (RAM Storage), da mizanin mahallin da suke daukawa a babbar ma’adanar kwamfutar gaba daya da sauran bayanai.

A daya bangaren kuma, yadda babbar manhajar kwamfuta ke amfani da wannan ma’adana ta wucin-gari mai suna RAM wajen lura da kuma alkinta manhajar mai kwamfuta shi ne: a duk sadda ka kunna kwamfuta, ka kuma kira wata manhaja don kayi amfani da ita (misali manhaja tsarawa da taskance bayanai irin su *Microsoft Office Word,* ko *Excel)* nan take babbar manhajar kwamfuta za ta dauko maka wannan manhaja da ka kira daga ma’adanar kwamfuta. Idan ta kira ta, sai ta ajiye manhajar a wannan ma’adana ta wucin-gadi mai suna RAM. A wannan wuri manhajar za ta kasance kana amfani da ita har sai ka gama aikinka. Da zarar ka rufe manhajar, sai a janye ta daga mahallin wannan ma’adana ta wucin-gadi, don kwamfutar ta samu karin sarari da numfasawa.

A lokacin da kake aiki da wannan manhaja kamar yadda bayani ya gabata a sama, tana ajiye ne a ma’adanar wucin-gadi, wato RAM. Ba ita kadai ba, duk wata manhaja idan ka sake kira, a nan za a yanka mata mizani. Iya yadda mizanin ya kuntata saboda yawaitan budaddun manhajojin da ka kira (Opened Applications), iya yadda kwamfutar za ta fara nauyi, ta fara tafiya lakakai-lakakai. Don haka, a duk sadda ka gama amfani da wata manhaja, nan take ka kulle ta, sai kwamfutar ta samu sararin numfasa, ta rika amsa umarninka ba tare da wata matsala ba. In so samu ne, ya zama ka rika budo manhaja guda daya a lokaci daya, sai in kana da bukatar wata manhaja da za ta taimaka maka wajen aikin da kake yi. Duk da cewa idan kwamfutarka na dauke ne da ma’adanar wucin-gadi mai girman gaske. Galibin kwamfutocin zamani yanzu kan zo ne da isasshiyar ma’adanar wucin-gadi.

*Samar da Tsarin “API”*

Aikin babbar manhajar kwamfuta ne ta tabbatar da tsarin daidaito tsakanin manhajojin da mai kwamfuta ke loda mata don amfani dasu. Misali, da kamfanin Microsoft ya tashi gina babbar manhajar *Windows*, ya samar da wasu isharori dake ishara zuwa ga dukkan hanyoyin da ya samar a babbar manhajar, wadanda dole ne duk wani mai gina manhajar kwamfuta da ake so a yi amfani da ita a kan babbar manhajar kwamfuta ta Windows dole ne su dace da mahallinta. Wadannan isharori su ake ira *Application Programming Interface,* ko *API* a gajarce.

A matsayinka na kwararre wajen gina manhajar kwamfuta (Computer Programmer), duk manhajar da kake son ginawa don ayi amfani da ita kwamfuta mai dauke da babbar manhajar Windows, dole ne ka samu wadannan isharori, don shigar dasu cikin dabarun da kake amfani dasu wajen gina manhajar. Amfanin hakan shi ne, da zarar an zo loda wa kwamfuta wannan manhaja taka, nan take babbar manhajar kwamfutar za ta kalli tsarin manhajar, sai ta tabbatar akwai wadannan isharori masu nuni zuwa ga tsarinta, sannan ta bayar da dama a loda mata. In kuwa basu dace ba, nan take za ta sanar dakai cewa “Babu dacewa a tsakaninta da manhajar.” Wannan shi ake kira “Application Compatibility.”

Wadannan, a takaice, su ne bangaren wannan mahimmin aiki na karshe da suka shafi babbar manhajar kwamfuta.