



MOBIL ILOVA YARATISHNI VIRTUAL O'RGATISHDA GLOBAL AXBOROT TIZIMLARI VA TEXNOLOGIYALARI

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O'zbekiston Respublikasi Prezidentining axborot-kommunikatsion va zamonaviy pedagogik texnologiyalarni ta'lim tizimiga joriy etishga bag'ishlangan Qaror, farmon va nutqlaridan kelib chiqib bugungi kunda ilg'or pedagogik texnologiyalar, ma'lumotlar bazasi resurslari hamda dasturiy vositalarga bo'lgan ehtiyojning ortishi uni ishlab chiqarish va ta'limda qo'llash masalasi dolzarbligini ko'rsatadi Ushbu maqola “Respublika o'quv markazlari monitoring olib boruvchi mobil ilova platformasi” ni yaratish mavzusi asosida tayyorlandi. Mobil ilova platformasini yaratishdan maqsad maktab darslaridan tashqari qo'shimcha o'quv mashg'ulotlaridan foydalanishda qulaylik yaratish. Uni qo'shimcha o'quv mashg'ulotlarga qatnashish istagida bo'lgan foydalanuvchilarga taqdim etish uchun mo'ljallangan. Mazkur platformani yaratishda mobil ilova yaratishuvchi dasturlar va undan foydalanish bosqichlari va to'g'risida ma'lumotlar berilgan. Mamlakatimiz Oliy ta'lim tizimining kredit-modul tizimiga o'ta boshlashi natijasida bu tizimda juda katta o'zgarishlar amalga oshirila boshlandi. Oliy ta'lim muassasalarida ta'lim jarayonini tashkil etish bilan bog'liq tizimni takomillashtirish chora-tadbirlari to'g'risida O'zbekiston Respublikasi vazirlar mahkamasining 2020-yil 2-martdagi PF-5953-son farmonida “2020/2021 o'quv yilidan boshlab respublika oliy ta'lim muassasalarida o'quv jarayonini bosqichma-bosqich kredit-modul tizimiga o'tkazish tartibi joriy etilsin” deyilgan.

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Bugungi kunda Android operatsion tizimi mobil qurilmalar sohasida eng keng tarqalgan. Android ochiq manbali kod va Google Siyosat tufayli o'z mahsulotlari uchun mobil qurilma ishlab chiqaruvchilariga android platformasini bepul ishlatishiga imkon beradigan mashhurligini oshirdi. Android foydalaniladi, chunki Samsung, HTC, Sony, Huawei kabi yirik mobil qurilmalari foydalaniladi.

Dastlab, Google taniqli robotlarning Android-versiyalarini berish uchun kengayib bordi, ammo mualliflik huquqi muammolari tufayli bu fikrga ega bo'lishdan bosh tortdi. Tizimning har bir versiyasi, 1,5 versiyasidan boshlab,



shirinliklar mavzusida o'z kodini oladi. Kod belgilari lotin alifbosining alifbo tartibida belgilanadi.

Dasturlashga aloqador sohalarda bu atama ko'p qo'llaniladi. API qisqartmasi Application Programming Interface so'zlarining bosh harflaridan olingan bo'lib, dasturlarni dasturlash interfeysi yoki dasturlarni dasturiy interfeysi deb tarjima qilinadi.

WWW ni bir-biri bilan bog'langan, serverlarning katta tarmog'i sifatida tasavvur qilish mumkin va ularda har bitta sahifa saqlanadi. Oddiy noutbukni tarmoqda butun bir sayt ishlashini ta'minlaydigan serverga aylantirish ham mumkin. Lokal serverlar esa, dasturchilarga ular sayt yaratishlari uchun vaqtincha server vazifasini bajarishi mumkin. Brauzerning manzil qatorida www.facebook.com yozilganda, boshqa joydagi facebook serveriga kerakli so'rov yuboriladi. Brauzer serverdan javob olish bilanoq u kodni interpretatsiya qiladi("chizadi") va foydalanuvchiga sahifani ko'rsatadi.

Brauzer butun web sahifani generatsiya qilish uchun javobni HTML ifodalash tilida kutadi. Google Kalendarning API si esa ma'lumotlarni JSON yoki XML formatda qaytaradi.

Agar API ga so'rovni kompaniyasi veb sayti serveri yuborsa, kompaniya serveri mijoz bo'ladi(huddi foydalanuvchi saytni tashrif buyurganda brauzer mijoz bo'lgani kabi).

API yordamida foydalanuvchi saytni tark etmagan holda har xil harakatlar qilish imkoniga ega bo'ladi.

Hozirda saytlar aksariyat hollarda bir nechta API xizmatlardan foydalanishadi. Ko'plab topshiriqlar tayyor yechimlarga ega bo'lib, bu holda ular dasturchilarga kutubxonalar yoki boshqa xizmatlar taklif qilishadi. Ko'plab dasturchilar dastur yaratish jarayonida dastur qismlarini bir nechta serverlarga bo'lib yuboradilar. Bu qismlar o'zaro API yordamida ma'lumot almashadilar. Bosh serverga qo'shimcha yoki yordamchi funksiyalar taqdim etadigan dasturlar - mikroxizmatlar(microservices) deb ataladi.

Shunday qilib, kompaniya o'z foydalanuvchilariga API taqdim etishi - kompaniya bir qancha maxsus URL yaratgan, ular esa o'z navbatida faqat ma'lumot qaytarishi demakdir.

Front-end qismida ishlayotgan dasturchi shu API lar bo'yicha kerakli parametrlarni jo'natadi, metod turini belgiladi. Bu murojaat internet trafik orqali dastur ishlab turgan serverga kelib tushadi va aynan biz yaratgan Controller yoki RestController class dagi metodlar orqali o'z ishini bajarib, ma'lumotlar



bazasidan qiymat qaytarib beradi. Qaytgan javob foydalanuvchi uchun UI qismda aks ettiriladi. Bu web dasturlarning ishlash prinsipidir.

Java texnologiyasi o'ta sodda, xavfsizlikni yuqori darajada ta'minlab bera oladigan, kuchli, to'la obyektga yo'naltirilgan dasturlash tili bo'lib, muhit (platforma)ga bo'liq bo'lmagan holda ishlaydi. U bilan xatto eng kichik qurilmalarga ham dasturlar yozish mumkin. Java texnologiyasi to'laligicha Javaning sintaksisi C++ ga asoslangan. Shuning uchun C++ tilini biladiganlar Javani oson o'rganishadi. Lekin undagi ko'pchilik xususiyatlar olib tashlangan. Masalan: Pointer(ko'rsatkich)lar bilan to'g'ridan to'g'ri ishlash, ya'ni Javada alohida ko'rsatkich tushunchasi yo'q. Operatorlarni qayta yuklash ham olib tashlangan. Yana eng muhimi, ishlatilmaydigan xotira (unreferenced objects) avtomatik tozalanadi. Buni Javadagi Garbage Collector (GC – chiqindi yig'ishtirgich) amalga oshiradi.

"Ma'lumotlar bazasi" atamasi bir nechta shartlarga ega. Ular qarama-qarshi emas, balki bitta tushuncha bo'yicha turli nuqtai nazarni anglatadi. Keling, ulardan birida yashaymiz:

Ma'lumotlar bazasi - Kompyuter xotirasida saqlanadigan ma'lumotlar to'plami va ularning tavsif, saqlash va manipulyatsiyaning umumiy printsiplarini aniqlaydigan ma'lumotlar to'plami shaklida.

Axborot modeli ushbu maqsadga muvofiq tanlangan va tuzilgan ob'ekt haqidagi ma'lumotlarni tushunadi.

Zamonaviy ma'lumotlar bazasi serverlari foydalanuvchi bilan yuqori saviyada o'zaro ta'sir qilish uchun barcha turdagi o'zgarishlar va mexanizmlarni o'z ichiga oladi. Ushbu rivojlanish vositalari, foydalanuvchilarga ilovalar sifatida, DBBMS sifatida ishlaydigan dasturlarni yaratishga imkon beradi.

ZBBMS - bu ko'plab odamlar ushbu dasturlarga xizmat ko'rsatadigan va ishlarining natijasidan foydalanadigan dasturiy ta'minot paketidir.

Dasturlar ma'lumotlar bazasi menejmenti tizimidan foydalanishda ishlatiladigan barcha kompyuter dasturlarini o'z ichiga oladi. Barcha DBMS funktsiyalarini bajarish uchun uchta turdagi dasturiy ta'minot talab qilinadi: 1) tizim dasturi (uskunaning barcha tarkibiy qismlarini boshqaradi va kompyuterda ishlaydigan boshqa barcha dasturlarga kirishni ta'minlaydi);

SQL imkoniyatlari. SQL(Structured Query Language) – Bu so'rov tili ko'p operatorlardan tashkil topgan bo'lib, bu operatorlar orqali foydalanuvchilar va dasturlar Oracle(MBBT) dagi ma'lumotlar bazasiga murojaatni amalga oshirishi mumkin. Oracle utililari yoki har xil dasturlar SQL operatorlarisiz bazaga

murojaatni amalga oshirishi mumkin, lekin so'rovlarni amalga oshirishda bu so'rov tilidan foydalanmaslikning iloji yo'q.

1970 yil iyun oyida E. F. KODD o'zining E.F. Codd, "A Relational Model of Data for Large Shared Data Banks" maqolasini ommaga taqdim etdi. Bu maqola "Communications of the ACM" jurnalida chop etildi. Hozirgi kunda Koddning bu modeli "relyastion ma'lumotlar bazasini boshqarish tizimi(RMBBT)" ning yakuniy modeli deb qabul qilindi. Kodd ning modelni yo'lga qo'yish maqsadida IBM firmasi SEQUEL(Structured English Query Language) tilini ishlab chiqdi. Keyinchalik bu til SQL tiliga o'zgartirildi, lekin haligacha "sikvel" deb ham yuritilmoqda. 1979 yil Relational Software(hozirgi vaqtdagi Oracle) korporatsiyasi SQL ning birinchi tijoriy ishlanmasini ommaga taqdim etdi. Hozirgi kunda SQL tili RMBBTning standart tili hisoblanadi.

SQL tili so'rov-natija ko'rinishida ishlaydi. So'rovlar har bir element uchun emas, butun bir guruh uchun beriladi va natija olinadi. SQL uchun ma'lumotlar bazasidagi ma'lumotlar qay shaklda, qay tartibda joylashganini umuman ahamiyati yo'q, foydalanuvchilar ham bu

ma'lumotlarni bilishi shart emas. Faqatgina operatorlarni to'g'ri yozish orqali istalgan ma'lumotlarni chiqarish mumkin bo'ladi.

SQL tili barcha ma'lumotlar bazasini boshqarish tizimlari uchun umumiy standart til hisoblanadi. Bundan kelib chiqadiki, agar siz bu tilni bir marotaba o'rganib olsangiz, istalgan MBBT lari bilan ishlay olasiz. Bitta MBBT da yaratilgan biror sql operatorlar yig'indisi(kichik so'rov dasturi)ni, istalgan MBBT ga ko'chirish mumkin bo'ladi.

SQL operatorlari orqali quyidagi vazifalarni bajarish mumkin:

- Ma'lumotlarni so'rov orqali olish.
- Jadvalning qatorlariga ma'lumot qo'shish, qatorlarini o'chirish va yangilash.
- Ob'ektlarni yaratish, o'zgartirish va o'chirish.
- Ma'lumotlar bazasi va ob'ektlarga ruxsatlarni o'rnatish.
- Ma'lumotlar bazasi foydalanuvchilarini hosil qilish va baza xafsizligini ta'minlash.

2 hil turdagi SQL mavjud: interaktiv va o'rnatilgan(встроенный). SQL ning bu 2 turi ishlashi bir hil, lekin har xil joyda ishlatiladi.

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