



MOBIL ILOVALAR ISHLAB CHIQISHDA FLUTTER FREYMWORIKIDAN FOYDALANISH

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Annotatsiya: Bu maqolada bugungi kunda insonlar hayoti uchun zarur va muhim bo'lgan mobil ilovalar va ularni ishlab chiqish texnologiyalari va Flutter freymworkini ishlatish haqida ma'lumotlar keltirilgan.

Kalit so'zlar: Mobil ilova, texnologiya, freymwork, mobil qurilma, mantiqiy interaktiv ta'lim, mobil o'yin.

Mobil ilovalarni ishlab chiqishda eng mashhur va qulay bo'lgan texnologiyalardan biri Flutter freymworkidir. Flutter — Google tomonidan ishlab chiqilgan ochiq manba (open-source) freymworkdir. Bu, asosan, mobil ilovalar (Android va iOS uchun) yaratish uchun mo'ljallangan. Flutter yordamida, bir vaqtning o'zida ikki platformaga (Android va iOS) ilova yaratish mumkin[1-3].

Flutterning asosiy xususiyatlari:

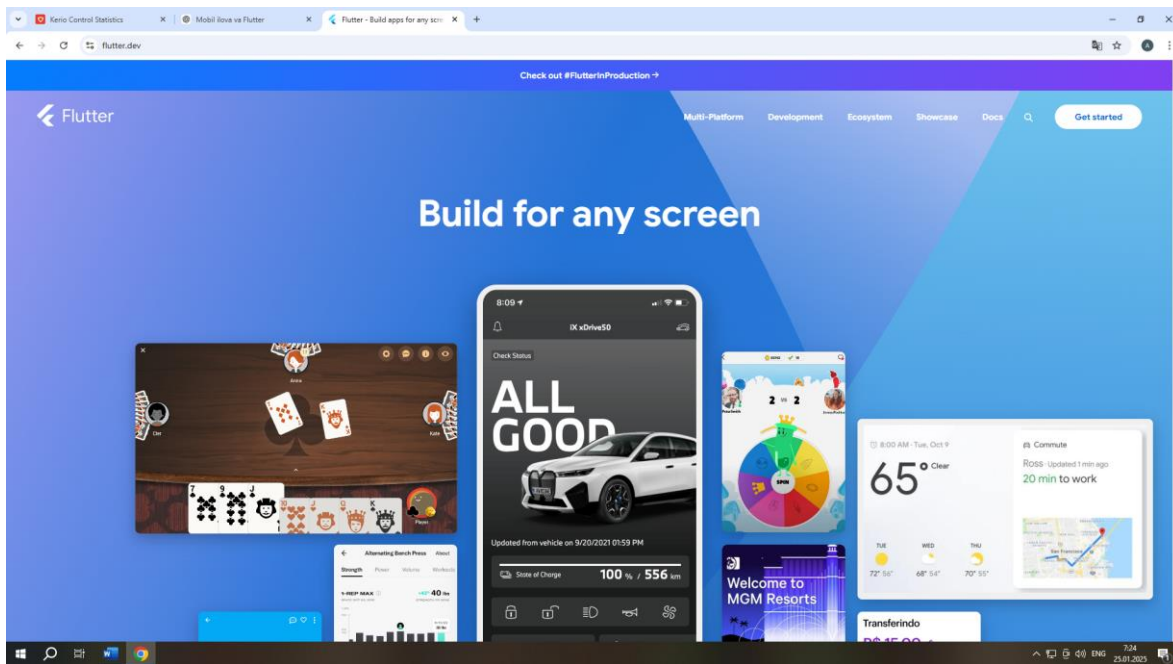
- **Dart dasturlash tili:** Flutter Dart dasturlash tilida yozilgan. Dart sintaksisi oson va ko'plab modern dasturlash tillariga o'xshaydi.



- **Widget-based tizim:** Flutterda ilovalar to‘liq widgetlardan tashkil topgan, bu esa interfeyslarni yaratishda juda qulaylik yaratadi. Har bir element, masalan, tugma, matn yoki rasm widget sifatida ko‘rsatiladi.

- **Tezkor ish faoliyati:** Flutter ilovalari yuqori darajadagi ishlash tezligi va samaradorlikni ta‘minlaydi, chunki ular to‘g‘ridan-to‘g‘ri natijani yaratadi, natijada nisbatan tez ishlaydi.

Flutter freymworkining rasmiy web sahifasi www.flutter.dev hisoblanadi.



1-rasm. *flutter.dev* saytining ko‘rinishi

Mobil ilovalar yaratish jarayoni quyidagi bosqichlardan iborat:

- **Reja tuzish:** Ilovaning maqsadini aniqlash, foydalanuvchi ehtiyojlari va funksional talablarni belgilash.

- **Dizayn va UI/UX:** Interfeys dizaynini yaratish, ilova foydalanuvchilari uchun qulay va intuitiv bo‘lishini ta‘minlash. Flutterning to‘liq kutubxonalari, shuningdek, ilg‘or widgetlar mavjud bo‘lib, dizaynni tezda amalga oshirish imkonini beradi.

- **Kodlash:** Dart dasturlash tilidan foydalanib, ilovaning backend va frontend qismlarini ishlab chiqish. Flutterda bir xil kodni ikki platformada ishlatish mumkin.



- **Test va optimizatsiya:** Ilovadagi xatoliklarni aniqlash va ularni tuzatish. Flutterda hot-reload funksiyasi yordamida tezkor test qilish va kodni o'zgartirish mumkin.

- **Yuklab olish va tarqatish:** Ilovani Google Play Store va Apple App Store'ga joylash[4-6].

Flutter fremworkini o'rnatish uchun kompyuteringiz maxsus talablarga javob berishi kerak. Windows operatsion tizimi uchun bu parametrlar eng kamida quyidagicha bo'lishi shart:

Hardware requirements

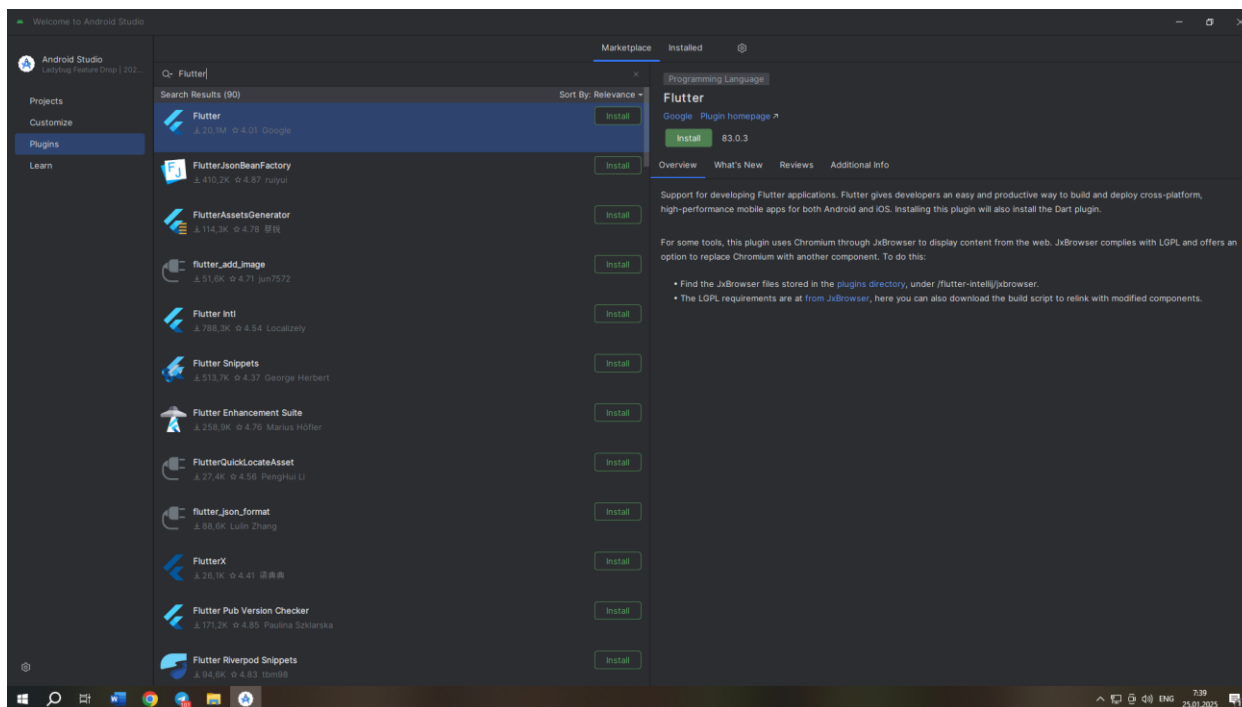
Your Windows Flutter development environment must meet the following minimal hardware requirements.

Requirement	Minimum	Recommended
x86_64 CPU Cores	4	8
Memory in GB	8	16
Display resolution in pixels	WXGA (1366 x 768)	FHD (1920 x 1080)
Free disk space in GB	4.0	52.0

2-rasm. Flutter freymworkini o'rnatish uchun kompyuter parametrlari

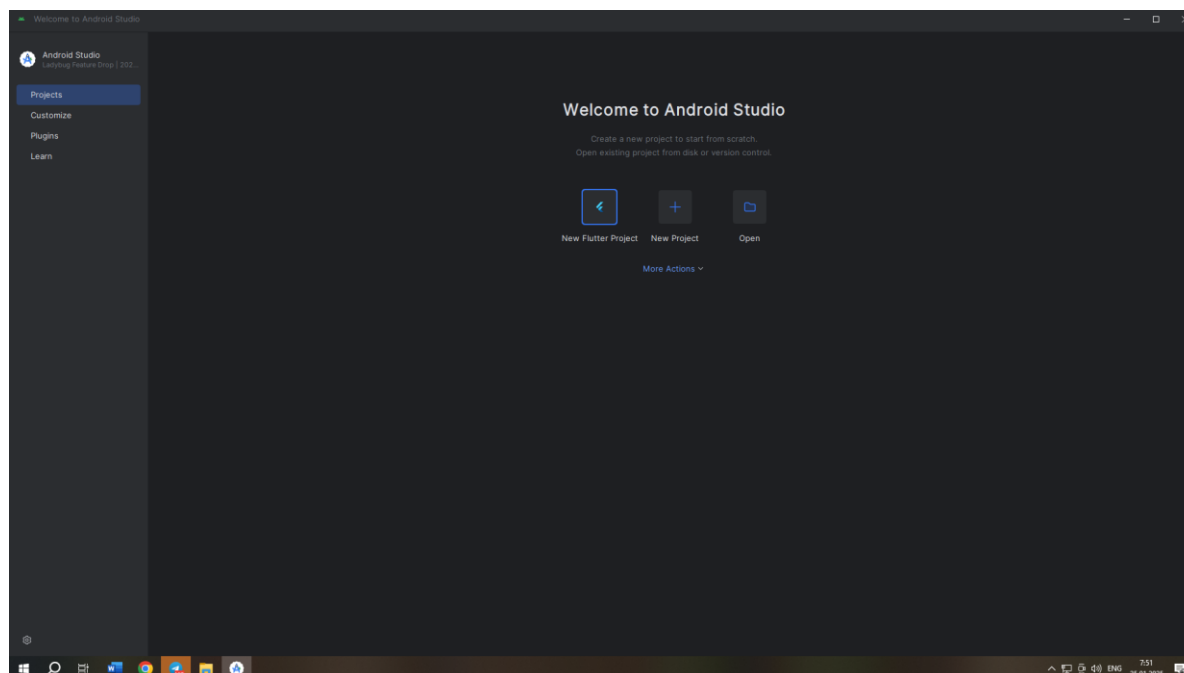
Shuningdek [Windows PowerShell](#) 5 yoki undan keying versiyalar, git dasturi, Android Studio yoki Visual Studio dasturlarini o'rnatish kerak bo'ladi. Bu dasturlar o'ratilganidan so'ng flutter SDK faylini arxivdan chiqarib C diskga joylashtirish kerak bo'ladi. Iloji boricha "src" papkasini yaratib, shu faylni ichiga joylashtirish tavsiya etiladi[7,9].

Andoid Studio dasturida qo'shimcha flutter pluginini o'rnatish kerak bo'ladi.



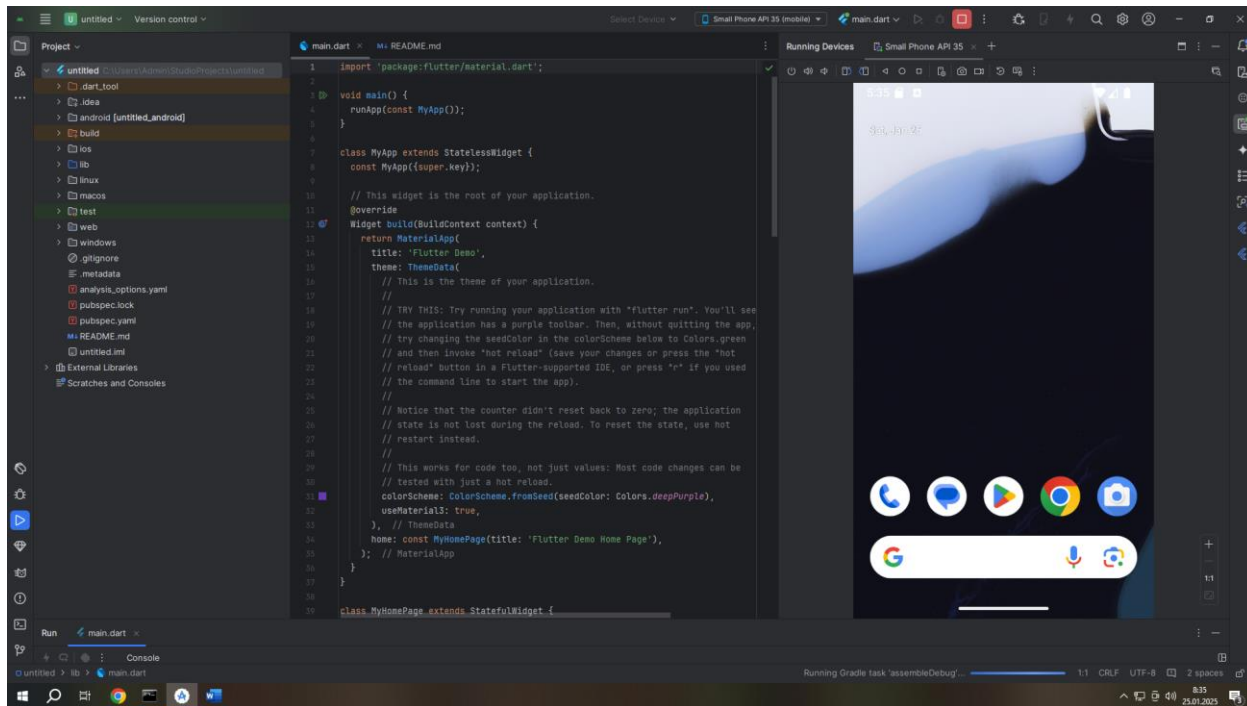
3-rasm. Flutter pluginini o'rnatish.

Yangi Flutter loyiha yaratish uchun “**New Flutter Project**” bandi chiqadi.



3-rasm. Flutterda yangi loyiha yaratish.

Flutterda yaratilgan yangi loyihaning ko'rinishi va natijasi quyidagicha:



4-rasm. Flutterda yangi loyihani yaratish jarayoni.

Flutterning afzalliklari

- **Bir kod bazasi:** Flutter yordamida bir xil kod bazasi orqali Android va iOS platformalari uchun ilovalar yaratish mumkin. Bu vaqt va resurslarni tejashga yordam beradi.
- **Hot-reload:** Kod o'zgartirilganda, o'zgartirishlarni ilovada darhol ko'rish mumkin, bu ishlab chiqish jarayonini tezlashtiradi.
- **Keng kutubxonalar:** Flutterda ko'plab tayyor kutubxonalar mavjud bo'lib, ular orqali ilovalarni tez yaratish va kengaytirish mumkin.
- **Kross-platform:** Faqat mobil ilovalar emas, balki veb-ilovalar va desktop ilovalarini ham Flutterda yaratish mumkin (yangi versiyalar bilan).

Flutter va boshqa texnologiyalar. Boshqa mashhur mobil ilova ishlab chiqish texnologiyalari:



- **React Native:** JavaScript asosida ishlab chiqilgan, kross-platforma ilovalarini yaratish uchun foydalaniladi. React Native ham ko‘p imkoniyatlar beradi, lekin ba’zan Flutterdan pastroq ishlash tezligi va kamroq moslashuvchanlikka ega.

- **Xamarin:** C# dasturlash tilida ishlab chiqiladi va Microsoft tomonidan qo‘llab-quvvatlanadi. Xamarin yordamida ham kross-platforma ilovalarini yaratish mumkin[8,10].

Flutterni ishlatishning qaysi holatlarda afzalligi bor?

- **Yangi boshlovchilar uchun:** Agar dasturlashga yangi kirishgan bo‘lsangiz, Flutter yordamida ilovalarni yaratish nisbatan osonroq va tezroq bo‘lishi mumkin, chunki barcha kod bir xil bo‘lib, o‘rganish jarayoni sodda.

- **Kichik va o‘rta biznes ilovalari:** Flutterning keng kutubxonalari va ishlab chiqishning tezligi, kichik kompaniyalar va startaplar uchun juda mos keladi.

- **Kross-platform ilovalar:** Agar siz ikkita platformada (Android va iOS) bir xil ilovani yaratmoqchi bo‘lsangiz, Flutter eng yaxshi tanlovlardan biridir.

Shunday qilib, Flutter — bu hozirgi kunda mobil ilovalar yaratish uchun eng ommabop va samarali texnologiyalardan biri. Agar siz ham mobil ilova ishlab chiqishni o‘rganishni xohlasangiz, Flutterni sinab ko‘rishni tavsiya qilaman.

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