



appium

Mobile Apps Automation Tool

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Mobile Testing?

- ♦ MT aplikasyonların fonksiyonlarını, kullanılabilitiği ve sürekliliğini test etme prosesidir. Manual ve otomasyon olarak test edilir.

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MT neden onemli?

- Teknoloji cagindayiz
- Her alanda mobile cihazlar var
- Rekabet ortamı
- Kalite, kontrol(test ederek) ile sağlanır...

TECHP

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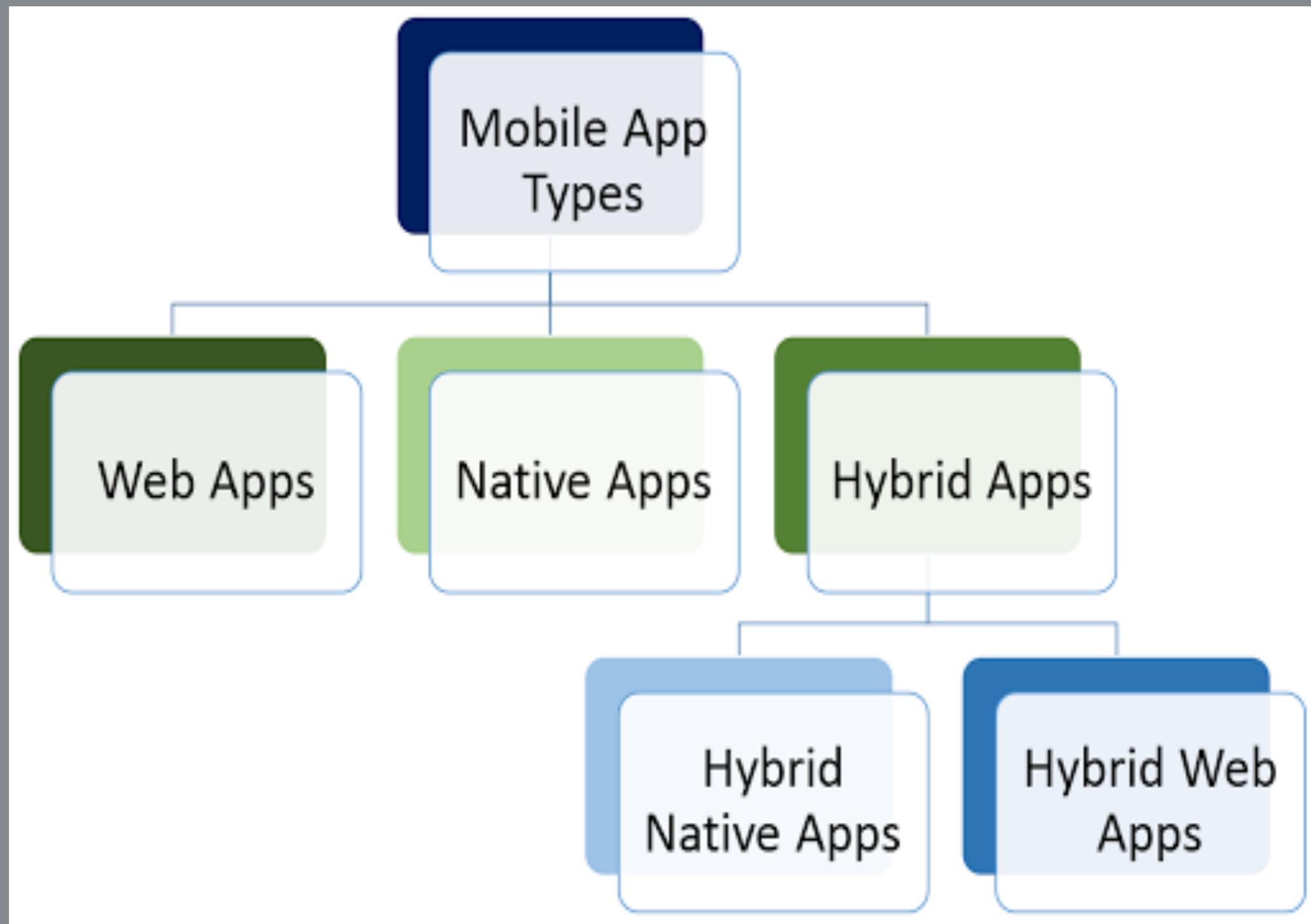
OS for Mobile Phones



Aplikasyonlar

- ◆ **Mobile Web App:** Storelardan indirilip kullanılan aplikasyonlar gibi değil fakat telefonun tarayicisi(browser) vasitasi ile kullanabildigimiz websitelere denir.
- ◆ **Native App:** sadece bir platform icin geliştirilip store aracılıgiyle kurulup kullanılabilen aplikasyonlara denir. (Apple store yada Google Play gibi)
- ◆ **Hybrid App:** Native ve Web App bir arada kullanildigi aplikasyonlara denir.

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Piyasadaki MT araçları

| | Robotium | uiautomator | Espresso | Appium | Calabash |
|-------------------------|-----------------------|--------------------------|---------------------|------------------------|------------------|
| Android | Yes | Yes | Yes | Yes | Yes |
| iOS | No | No | No | Yes | Yes |
| Mobile web | Yes (Android) | Limited to x.y clicks | No | Yes (Android & iOS) | Yes (Android) |
| Scripting Language | Java | Java | Java | Almost any | Ruby |
| Test creation tools | Testdroid Recorder | UI Automator viewer | Hierarchy Viewer | Appium.app | CLI |
| Supported API levels | All | 16 => | 8, 10, 15 => | All | All |
| Community | Contributors | Google | Google | Active | Pretty quiet |



appium

Mobile Apps Automation Tool

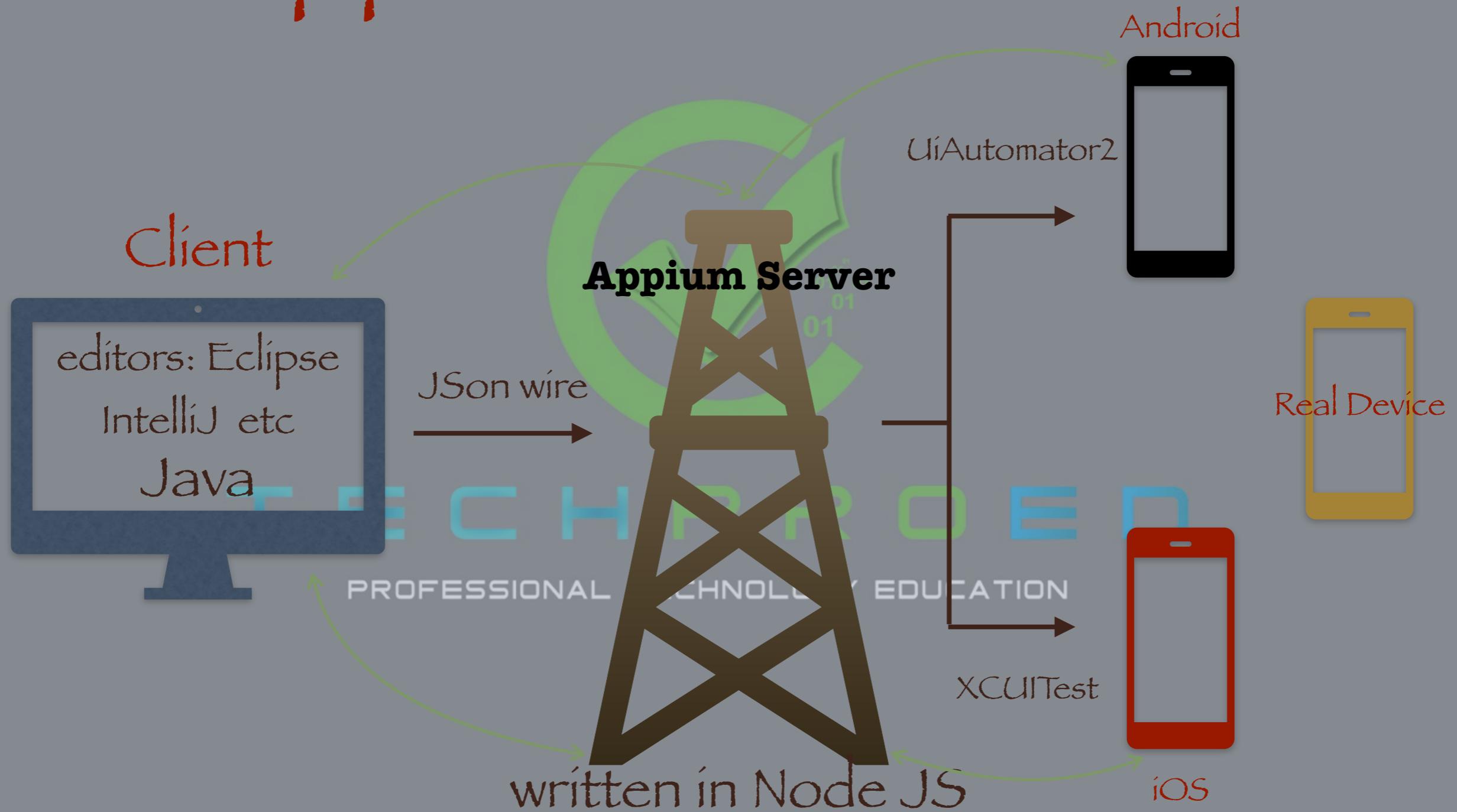
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Appium nedir?

- ◆ Appium piyasadaki mobile test araçları içinde en popüler olanlardan biri ve çok fazla tercih ediliyor.
- ◆ (Open-source software automation toll)
Open-source yazılım otomasyon aracı ve multi platform özelliği sağlıyor. Android ve iOS cihaz testlerini yapabiliyorsunuz.

Appium nasıl çalışır?



Avantajları:

- Open-source ve çok geniş bir kullanıcıya sahip
- Bir çok programlama diliyle uyumlu (Java, C# vs.)
- Android and IOS sistemleri ile uyumlu
- Emulator /Simulator yada gerçek cihazlarla uyumlu
- Native app, Web app ve Hybrid app uyumlu
- Built-in aplikasyonlarla uyumlu (Hesap makinesi, arama, mesaj vs)



Limitleri

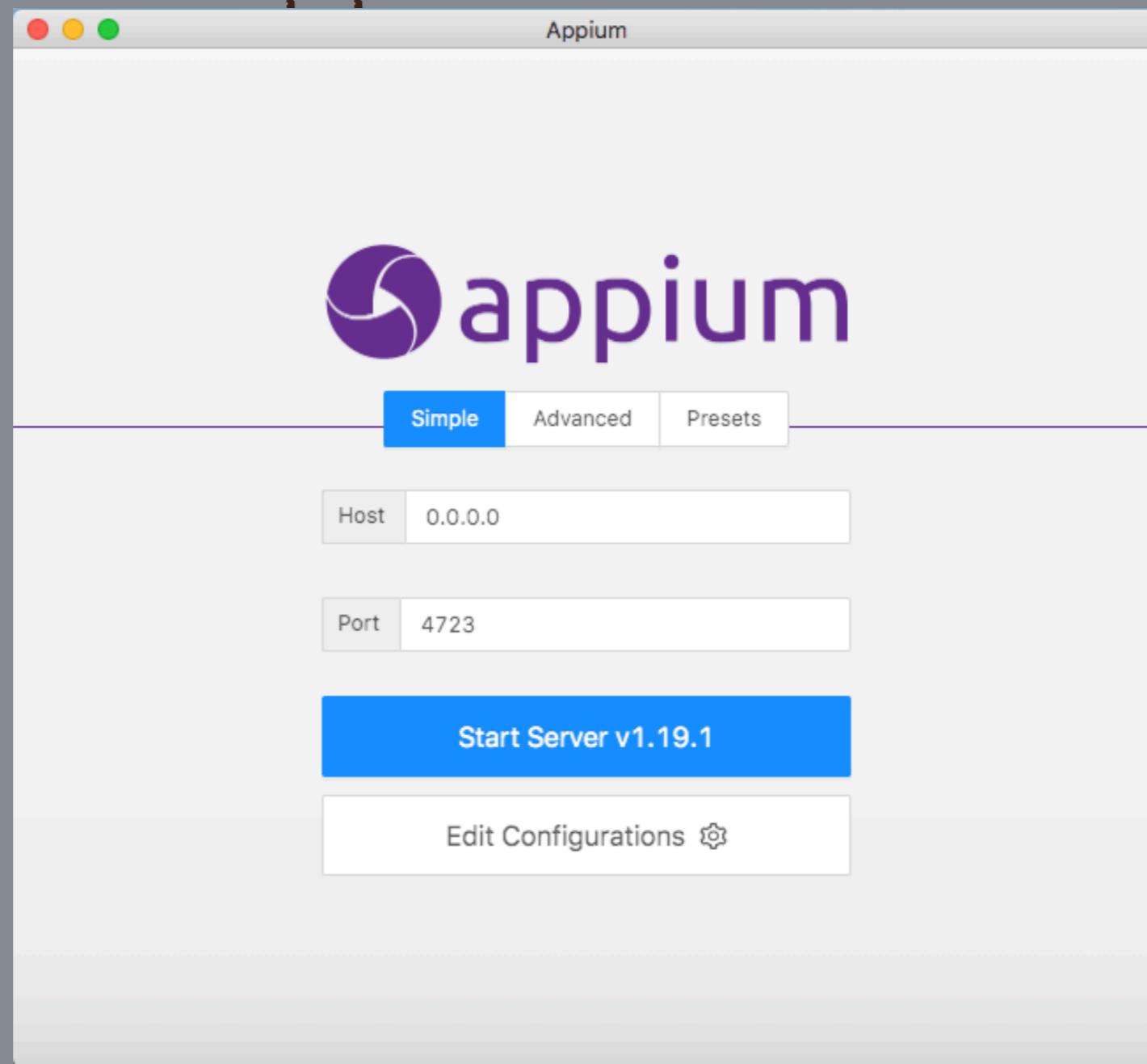
- Eski Android versiyonları desteklemiyor (4.1 <)
- Kod caslismasi yavaş her iki sistem icin (iOS ve Android)
- Toast mesajları desteklemiyor...



Appium Server

Appium Server kullanıcının (Client) taleplerini JSON Wire protokolu vasıtasi ile ilgili native test otomasyon framework üzerinde kullanıcının kodunu (talebini) ilgili cihaz üzerinde calistirir. Test sonuclarini alıp kullanıcıya iletir. Appium server birden çok oturumu es zamanlı olarak farklı cihazlarda yapma özelligine sahiptir.

Appium server



DesiredCapabilities

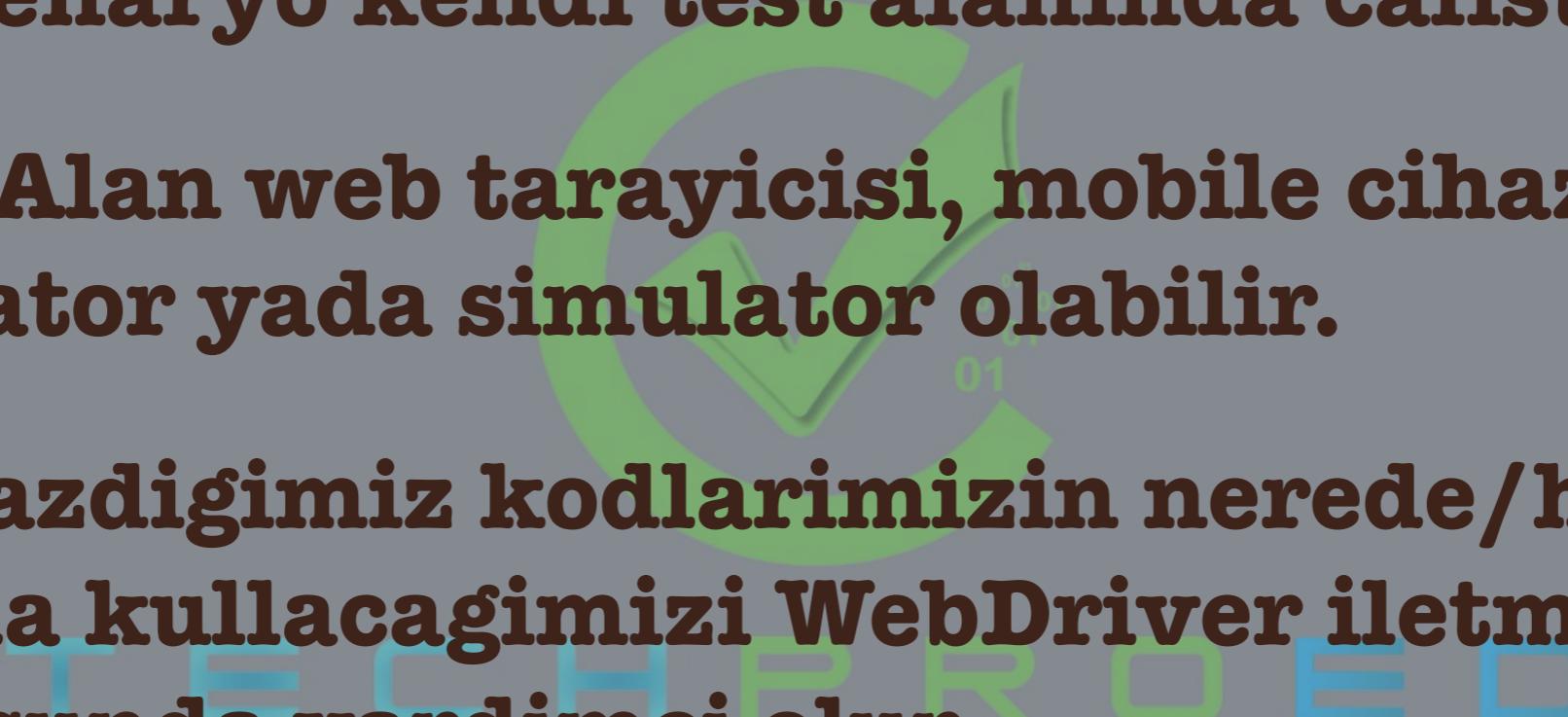
- DesiredCapabilities Selenium da bir sınıf.
- Tarayicinin(browser) özelliklerini ayarlayıp Web aplikasyonlarında carpraz tarayıcı testi yapmayı saglar.

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DC ne işe yarar?

- Her senaryo kendi test alanında calistirilir.
- Test Alan web tarayicisi, mobile cihaz emulator yada simulator olabilir.
- DC, yazdigimiz kodlarimizin nerede/hangi alanda kullacagimizi WebDriver iletme konusunda yardimci olur.
- <https://appium.io/docs/en/writing-running-appium/caps/index.html>



Android

```
DesiredCapabilities desiredCapabilities = new DesiredCapabilities();

desiredCapabilities.setCapability(MobileCapabilityType.PLATFORM_NAME, value: "Android");
desiredCapabilities.setCapability(MobileCapabilityType.PLATFORM_VERSION, value: "10.0");
desiredCapabilities.setCapability(MobileCapabilityType.AUTOMATION_NAME, value: "UiAutomator2");
desiredCapabilities.setCapability(MobileCapabilityType.DEVICE_NAME, value: "Android");
desiredCapabilities.setCapability(MobileCapabilityType.APP, value: "pathofAndroidapp");
```

iOS

```
DesiredCapabilities desiredCapabilities = new DesiredCapabilities();

desiredCapabilities.setCapability(MobileCapabilityType.AUTOMATION_NAME, value: "XCUITest");
desiredCapabilities.setCapability(MobileCapabilityType.PLATFORM_NAME, value: "iOS");
desiredCapabilities.setCapability(MobileCapabilityType.PLATFORM_VERSION, value: "12.1");
desiredCapabilities.setCapability(MobileCapabilityType.DEVICE_NAME, value: "iPhone 8");
desiredCapabilities.setCapability(MobileCapabilityType.APP, value: "pathofapp");
```

Mobile test

- ♦ MT baslarken hazır olması gerekenler:
**Sanal yada gerçek cihaz
Appium server**
- ♦ Sanal veya gerçek cihazın bilgisayara bağlı olması

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Kurulum



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Appium Inspector

The screenshot shows the Appium Inspector application window. At the top, there are three tabs: "Automatic Server" (selected), "Custom Server", and "Select Cloud Providers". A status message below the tabs indicates: "Will use currently-running Appium Desktop server <http://localhost:4723>".

In the middle section, there is a link to "Advanced Settings". Below it, there are three buttons: "Desired Capabilities" (selected), "Saved Capability Sets 2", and "Attach to Session...".

The main area is titled "Desired Capabilities" and contains a table. The columns are "Name", "Type", "Value", and "Actions". The "Name" column has a dropdown menu with options: "text" (selected), "boolean", "number", "JSON object", and "filepath". The "Type" column shows "text". The "Value" column is empty. The "Actions" column includes a trash icon and a plus icon.

To the right of the table, under "JSON Representation", is a JSON object: {}.

At the bottom of the window, there are links for "Desired Capabilities Documentation", "Save As...", and a blue "Start Session" button.

Mobile cihazlarda elementler nasıl bulunur?

- ◆ Appium inspector ac
- ◆ Aplikasyonu Appium Inspector aracılığı ile çalışıralım



2.yol: TECH PRO EDU

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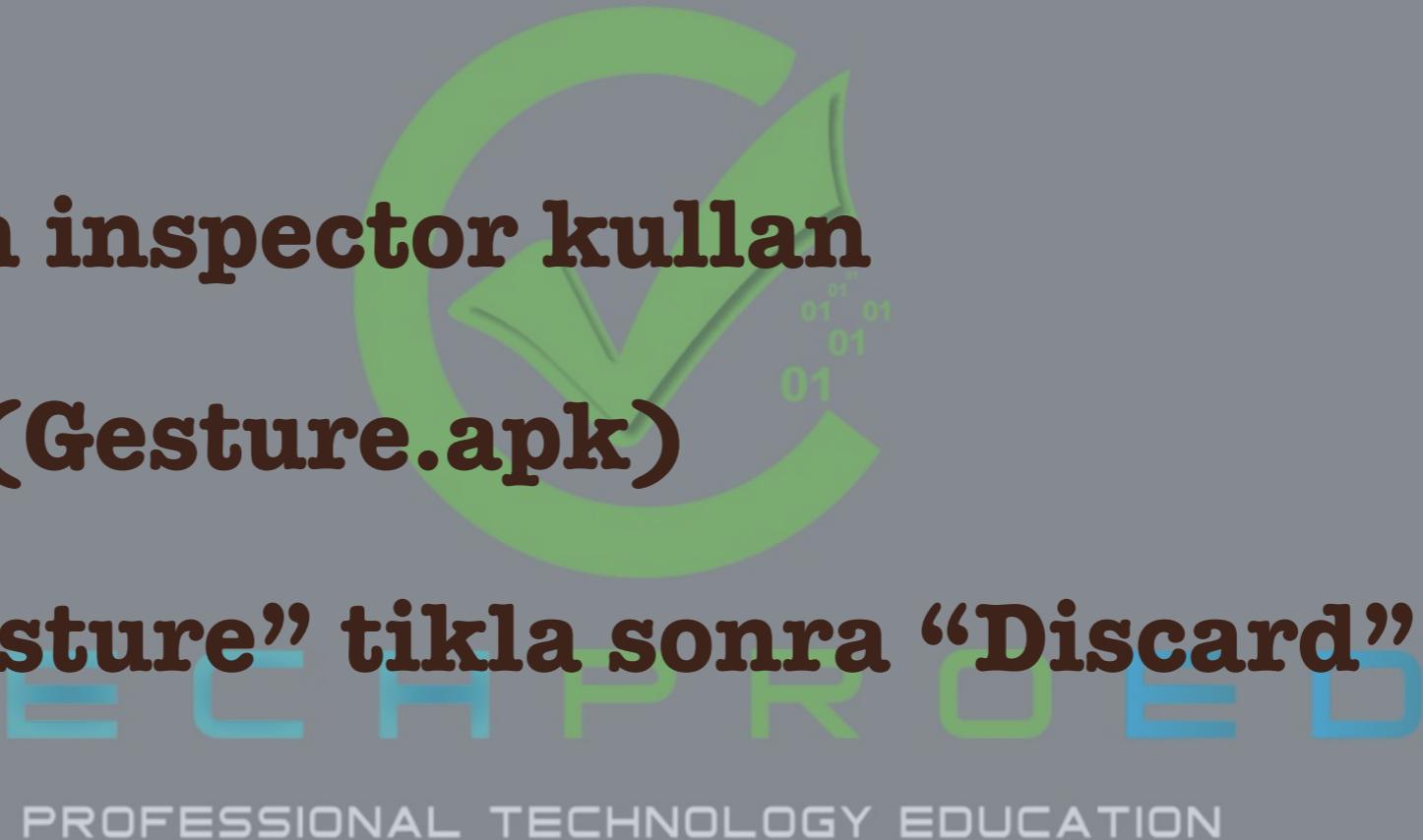
- ◆ uiautomatorviewer

Mac==>Library->Android->sdk->tools->bin->uiautomatorviewer

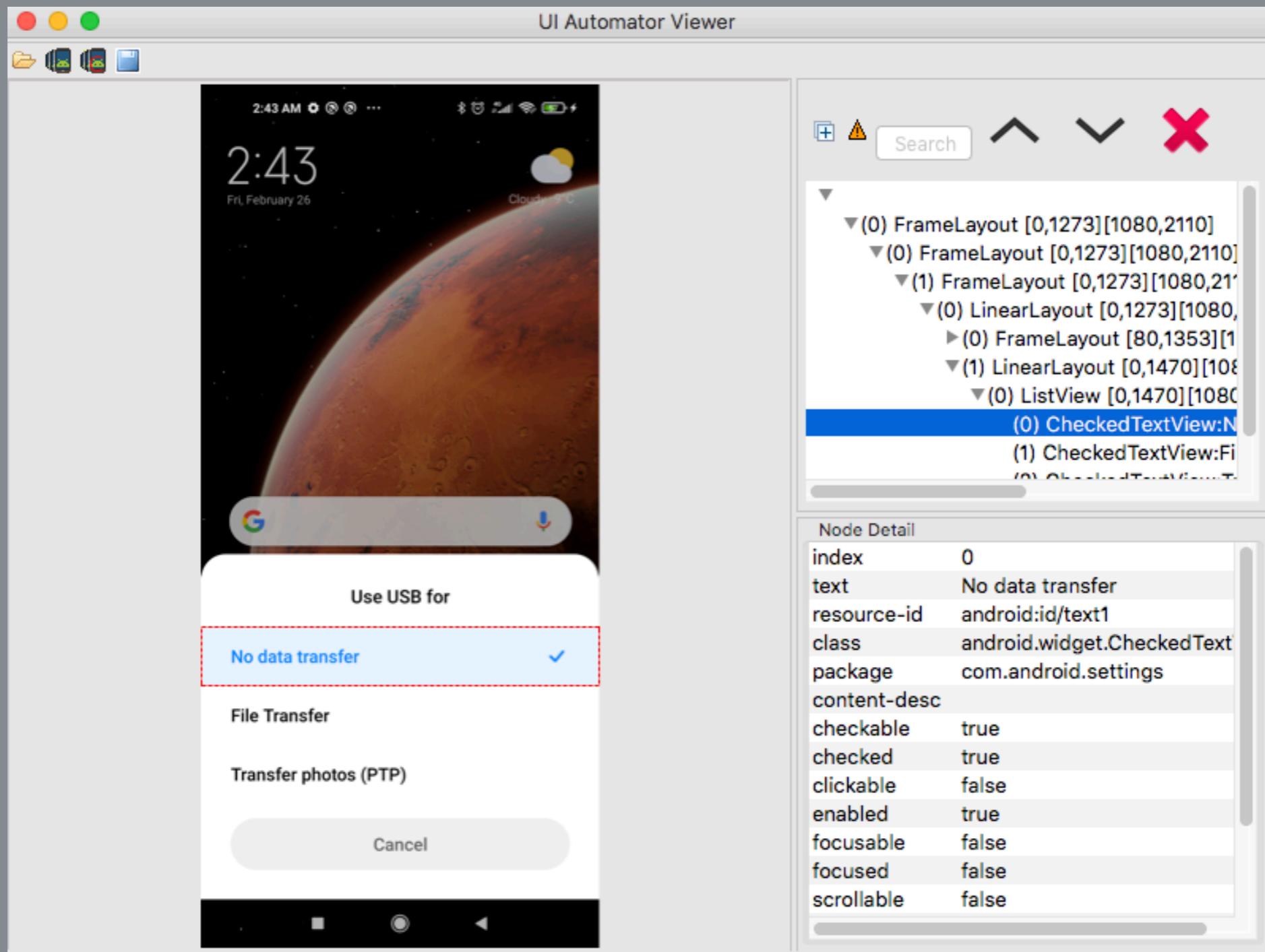
Windows ==> Sdk->tool->(if not there)->bin->uiautomatorviewer

Mobile testing (Native App)

- ◆ **Appium inspector kullan**
- ◆ **App ac (Gesture.apk)**
- ◆ **“Add gesture” tikla sonra “Discard”
tikla**



uiautomatorviewer



Mobile testing (Native App)

- ❖ uiautomatorviewer kullan



- ❖ app ac(Gesture.apk)

- ❖ “Test” tikla

- ❖ “Test a gesture” yazısını onayla

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- ❖ app kapat

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“.apk” yoksa app nasıl kurulur

- appPackage appActivity (ulasabilmek için app cihazda açılır)
Sonra Terminal(ios) / CMD prompt (Windows) acın

adb device (baglı olan cihazları listeler) yazıp cihazınızın bağlı olduğunu gor

adb shell (yazıp enter e basın)

\$ isarerinden sonra

dumpsys window | grep -E “mCurrentFocus”

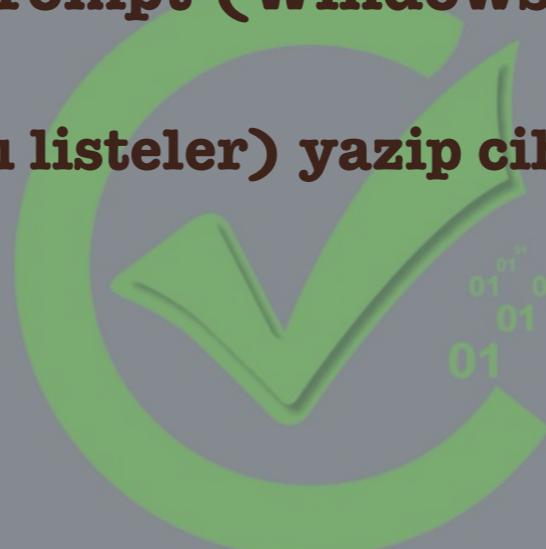
Yada

dumpsys window windows | grep -E “mCurrentFocus | mFocusedApp”

(yukarıdaki komutlardan birini yazıp enter bas ve alttaki bilgilere ulaş)

mCurrentFocus=Window{2c2373b u0 com.android.chrome/
com.google.android.apps.chrome.Main}

appPackage (kirmizi yer) appActivity(mavi yer)



“.apk” yoksa

Automatic Server Custom Server Select Cloud Providers

Will use currently-running Appium Desktop server <http://localhost:4723>

> Advanced Settings

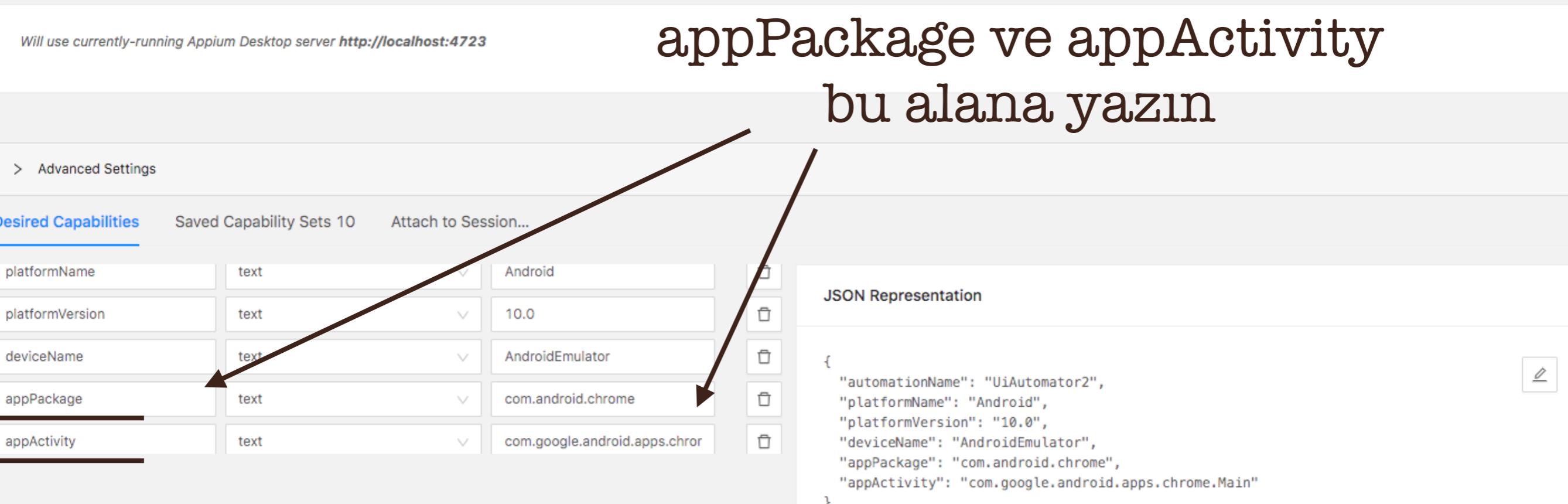
Desired Capabilities Saved Capability Sets 10 Attach to Session...

| | | | |
|-----------------|------|-------------------------------|--------|
| platformName | text | Android | Delete |
| platformVersion | text | 10.0 | Delete |
| deviceName | text | AndroidEmulator | Delete |
| appPackage | text | com.android.chrome | Delete |
| appActivity | text | com.google.android.apps.chrom | Delete |

appPackage ve appActivity
bu alana yazın

JSON Representation

```
{  
  "automationName": "UiAutomator2",  
  "platformName": "Android",  
  "platformVersion": "10.0",  
  "deviceName": "AndroidEmulator",  
  "appPackage": "com.android.chrome",  
  "appActivity": "com.google.android.apps.chrome.Main"  
}
```



Start session tıklayarak app cihazda acabilirsiniz

“.apk” yoksa

appPackage ve appActivity IntelliJ de desiredCapabilities ekleyin

```
DesiredCapabilities desiredCapabilities = new DesiredCapabilities();

desiredCapabilities.setCapability(MobileCapabilityType.PLATFORM_NAME, value: "Android");
desiredCapabilities.setCapability(MobileCapabilityType.DEVICE_NAME, value: "AndroidEmulator");
desiredCapabilities.setCapability(MobileCapabilityType.PLATFORM_VERSION, value: "10.0");
desiredCapabilities.setCapability(MobileCapabilityType.AUTOMATION_NAME, value: "UiAutomator2");
desiredCapabilities.setCapability(MobileCapabilityType.BROWSER_NAME, value: "chrome");
desiredCapabilities.setCapability( capabilityName: "chromedriverExecutable", value: "chromedriver path buraya yaz");
desiredCapabilities.setCapability( capabilityName: "appPackage", value: "com.google.android.dialer");
desiredCapabilities.setCapability( capabilityName: "appActivity", value: "com.google.android.dialer.extensions.GoogleDialtactsActivity");
desiredCapabilities.setCapability(MobileCapabilityType.NO_RESET, value: true);

AndroidDriver<WebElement> driver = new AndroidDriver<WebElement>(new URL( spec: "http:127.0.0.1:4723/wd/hub"), desiredCapabilities);
```

Nota dikkat



Bu bilgiler Chrome aplikasyonuna göre hazırlanmıştır. Siz hangi aplikasyonda çalışacak iseniz aynı işlemleri yaparak bu bilgilere ulaşabilirsiniz.

Native(built-in) App - Calculator

- ◆ appPackage

TEST CASE:

lunch app

locate all elements

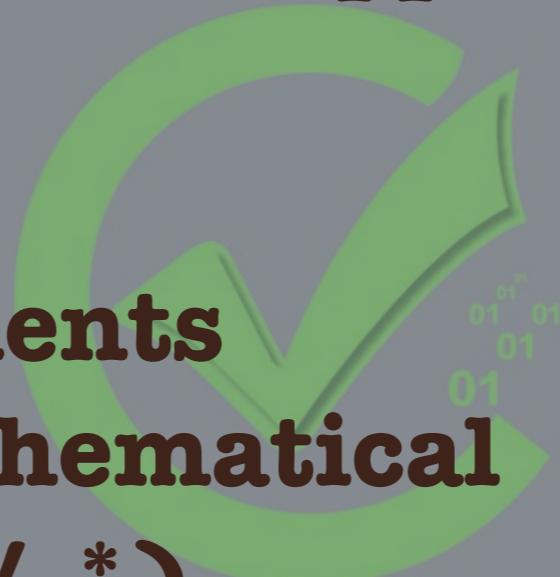
make any mathematical

operation(+,-,/,*)

check pre-result H P R O E D

verify result

appActivity



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“Dialer” RD

- vysor indir (telefonu ekranda gormek icin)
cihazi USB ile baglayin
app calistin
type number tikla
numarayı gir 
arama yap
aramaya bitir

Exercise:

- Whatsapp cihaza kurun(Real/VD) kodunuzu yazarak dilediniz hisye mesaj gonderin(download whatsapp.apk)

The logo consists of the word "TECH PRO ED" in a bold, sans-serif font. The letters are colored in a gradient: T (light blue), E (medium blue), C (light green), H (medium green), P (light blue), R (medium blue), O (light green), E (medium green), and D (light blue).

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Web App Testing(chrome)

- ◆ **Sanal veya gercek cihazda Chrome acin**
- ◆ **appPackage appActivity**
- ◆ **browserName chrome / safari**
Trick=> sanal/gercek cihazda chrome ac
bilgisayarda chrome ac => settings(ayarlar)
=>more tool=>remote device=> go to mobile view
=>inspect. :)

Web App Testing(chrome)

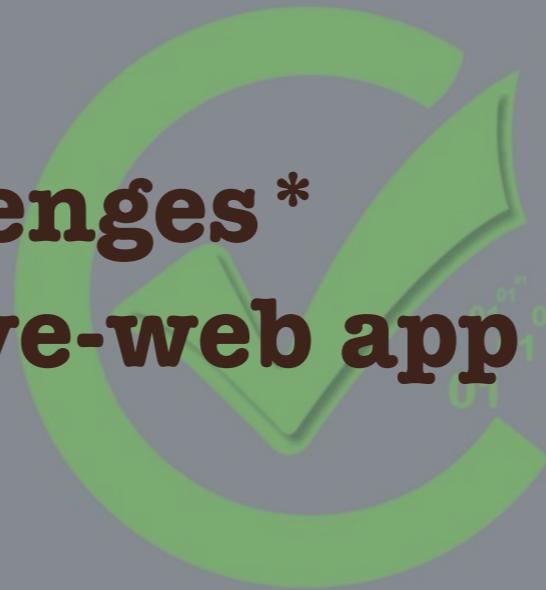
- ❖ facebook.com git kullanici adi ve sifre koy giriş butonuna tikla (kullanici adi ve şifre kendin olustur)
- ❖ browserName chrome / safari
Trick=> **open chrome in VD/RD** 
open chrome on dev. Mach. => **settings**
=>**more tool=>remote device=> go to mobile view**
=>**inspect. :)**

Web App Testing(chrome)

- ◆ **Calisma:**
- ◆ “<https://amazon.com>” git
- ◆ sign in tikla
The logo consists of the word "TECH PROED" in a bold, sans-serif font. The letters are colored in a gradient: T and E are blue, H is green, P and R are blue, O is green, and D is blue. Below the main text, the words "PROFESSIONAL TECHNOLOGY EDUCATION" are written in a smaller, all-caps, black font.
 - ◆ Verify “Welcome” text from sign in page

Hybrid App Testing

- ❖ **real life challenges ***
- review (native-web app-hybrid)**



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- ◆ **Text box, check box, radio button**

Lunch API Demos =>Preference =>
Preference dependencies

WiFi check box should checked

WiFi setting => input any text for Text box

Click ok



Radio Button ==> same logic with Check
box

UiSelector

<https://developer.android.com/reference/androidx/test/uiautomator/UiSelector>

- **UiSelector()** Android SDK den gelmektedir. Appium da **findElement()** yazdigimiz da kodlar Android SDK gider, Android komutlari -telde - calisir. **UiSelector elementleri direkt bulur bu** **yüzden daha hizlidir.**

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- ◆ **Text box, check box, radio button**

**Lunch API Demos =>Preference =>
Preference dependencies**

**WiFi check box
checkbox checked/unchecked onayla**

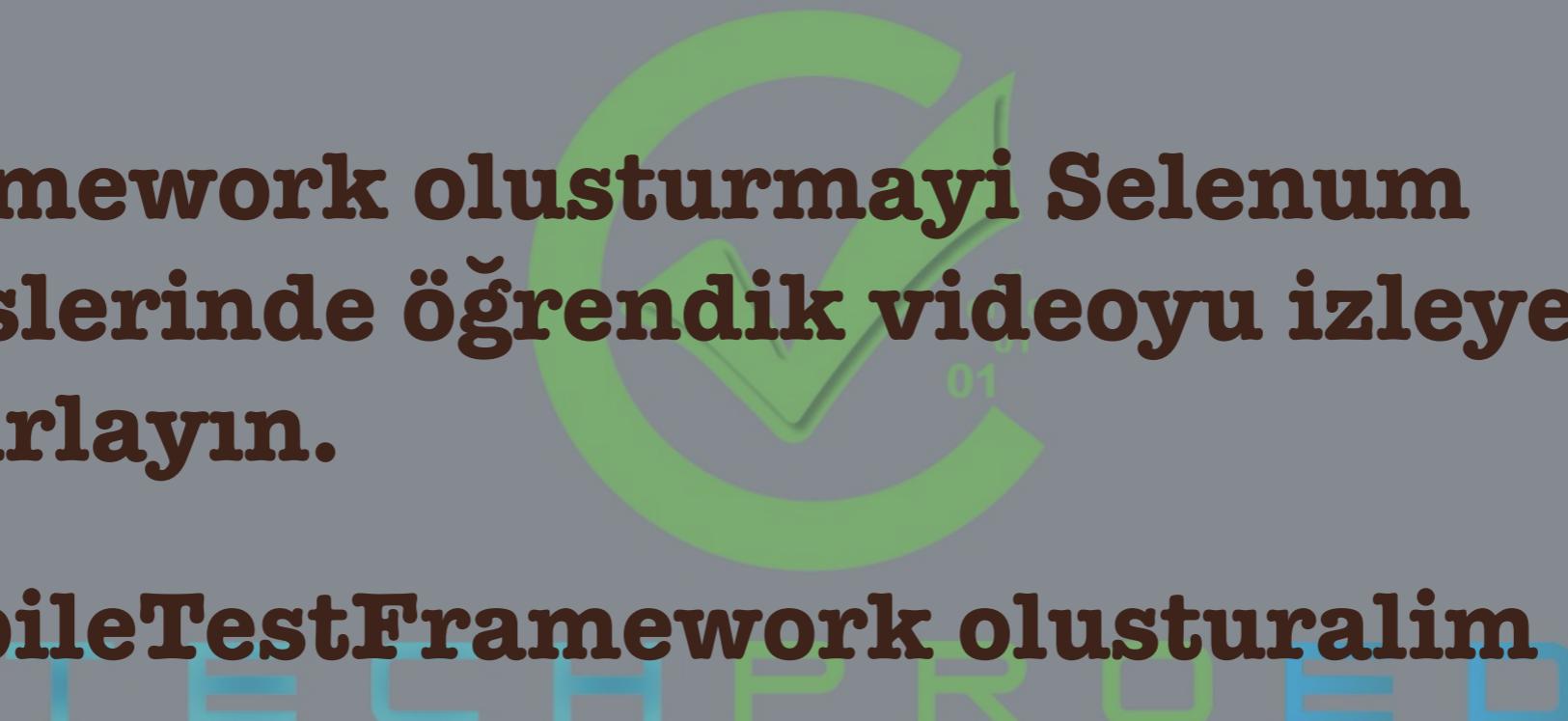
TECH PRO E
WiFi setting
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=> yazı kutusuna yazı gönder

Radio Button ==>ayni ozellikte calisir

- ◆ **Test Case:**
app ac(API Demos)
APi demos
Preference
sonra Preference form code
=>**tkla Checkbox preference ve onayla**
=>**Edit text preference tikla**  
yazi yaz ve OK tikla
=> **List preference tikla ce Option3 sec**

Mobile Testing Framework (Cucumber+Appium)

- ◆ Framework oluşturmayı Selenium derslerinde öğrendik videoyu izleyerek hatırlayın.
- ◆ mobileTestFramework oluşturalım



- ◆ **TouchAction**
- ◆ **Switch Element**
Lunch API Demos =>Preference =>
Switch=>
=>**switch on/off**
onayla switch on/off



T E C H P R O E D

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- ◆ **TestCase:**
API Demos
Preference git
Switch git
switches butonlarla calis
(ilk switch buton acid
ikincisi koala olmali)
- ◆ **Bonus you can work on checkbox and**
verify it



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working with elements

- ◆ **Drop-down/Swipe**

TouchAction

API Demos

=>**Views**

=>**Drag and drop** PRO

=>**drag first dot and drop it third one**

=>**verify text**



working with elements

♦ Drag Drop

TouchAction

API Demos

=>Views

=>Drag and drop

=>noktalı al 2 ye koy

=>4. Noktanın gorundugunu onayla

(4. Nokta baslangicta yok)



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working with elements

- ◆ **Swipe**
- TouchAction**
- API Demos**
- =>**Views**
- =>**Date Widgets**
- =>**click 9**
- =>**swipe(kaydir) 15 to 45**



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Extra app çalışma

♦ Drop-down with Android UI Desing.apk

=>click main menu

=>Drag and drop

=>click Simple DragDrop button

=>~~TE~~ to ~~Drop1~~ PRO

=>Drag1 to Drop3

darkly senoryolar ile calis

Scrolling (Dikey & yatay)

- ♦ **Scrolling(Dikey)**

Tel ekran olcusu lazim *

Dimension sınıfı Selenium dan gelir
syntax:

```
Dimension dimension =  
driver.manage().window().getSize();
```

Eger scrolling(kaydirma) yapacaksanız

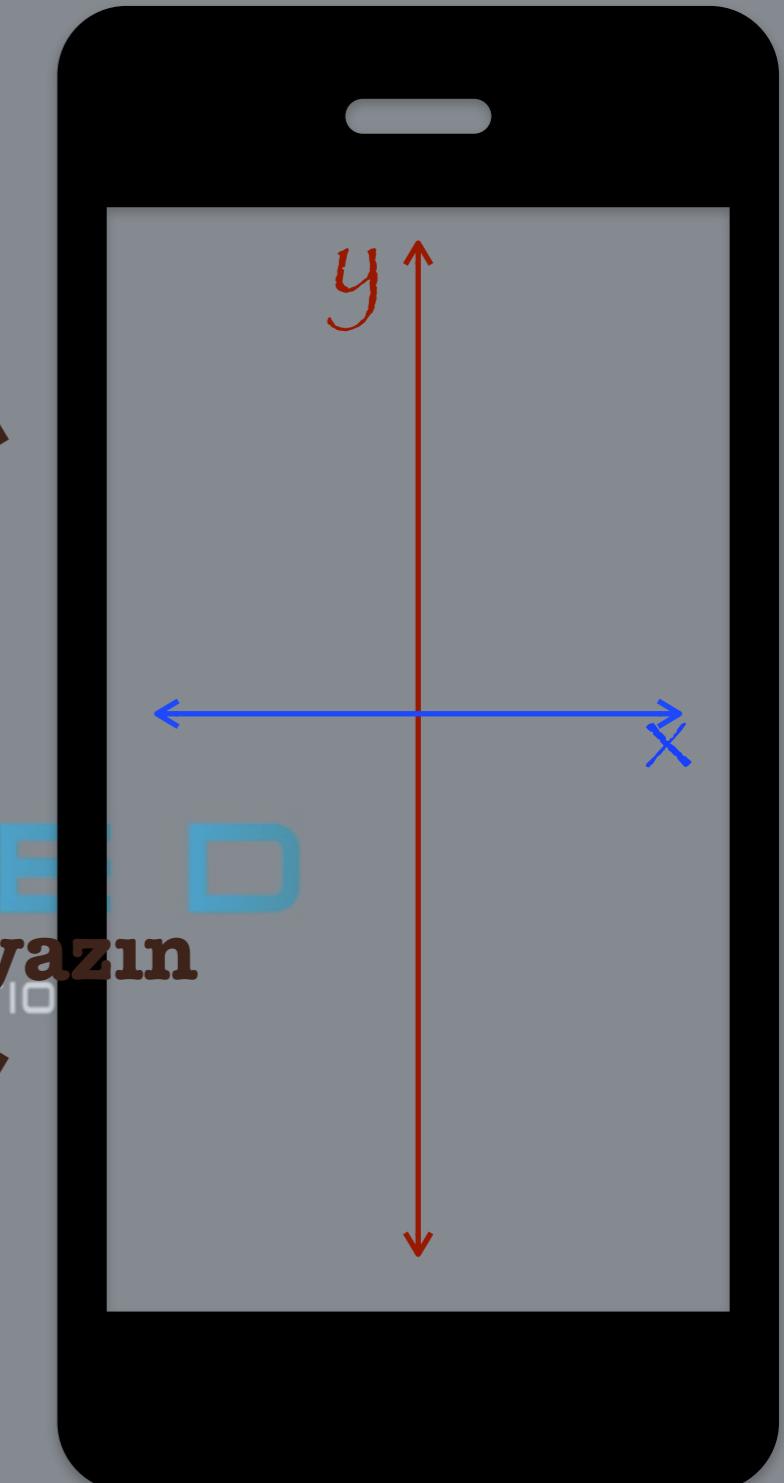
bslangic ve bitis nolktasi belirleyip

Bunlar arasında kaydirmak icin komut yazın

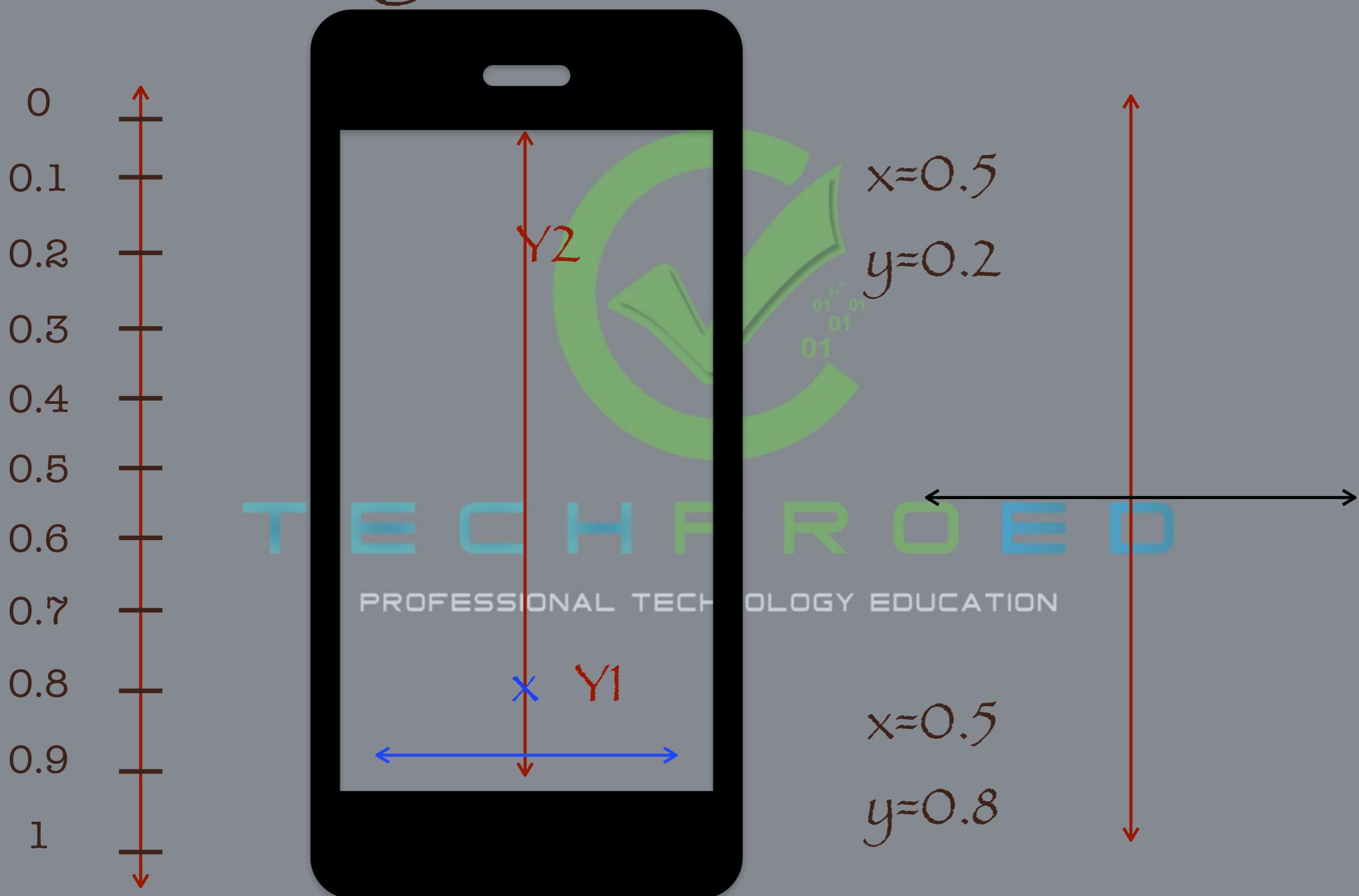
start_x start_y

end_x end_y

Sonra TouchAction sinini kullan

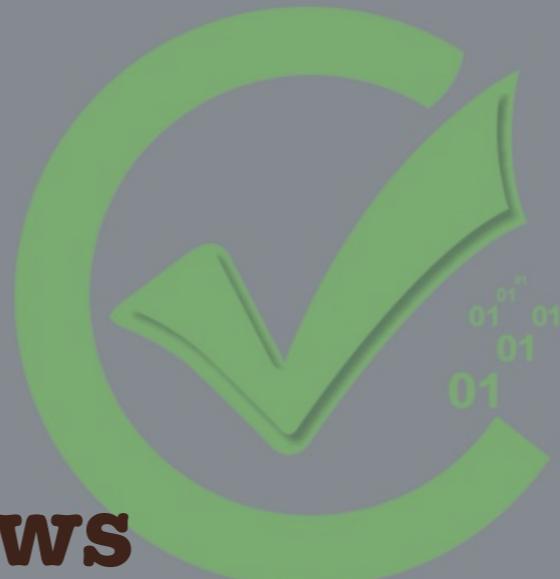


Scrolling (Horizontal & Vertical)

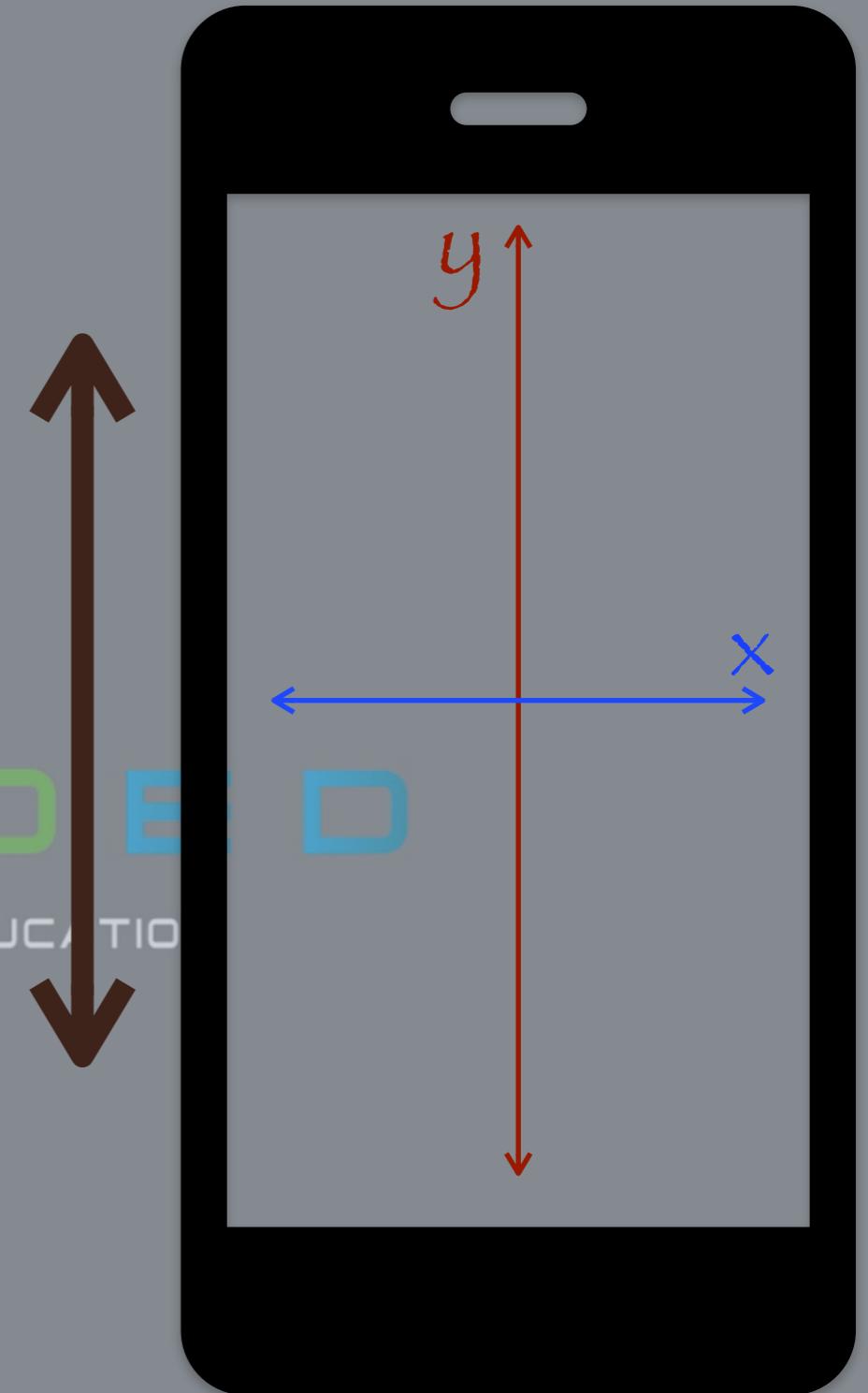


Scrolling (Horizontal & Vertical)

- ◆ Test Case:
**API Demos =>Views
=>Switches bul ve tikla**



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Scrolling (UiScrollable().UiSelector())

- ◆ Sadece Android ile çalışır
- ◆ Bu daha hızlı cunku direkt elemente gidiyor

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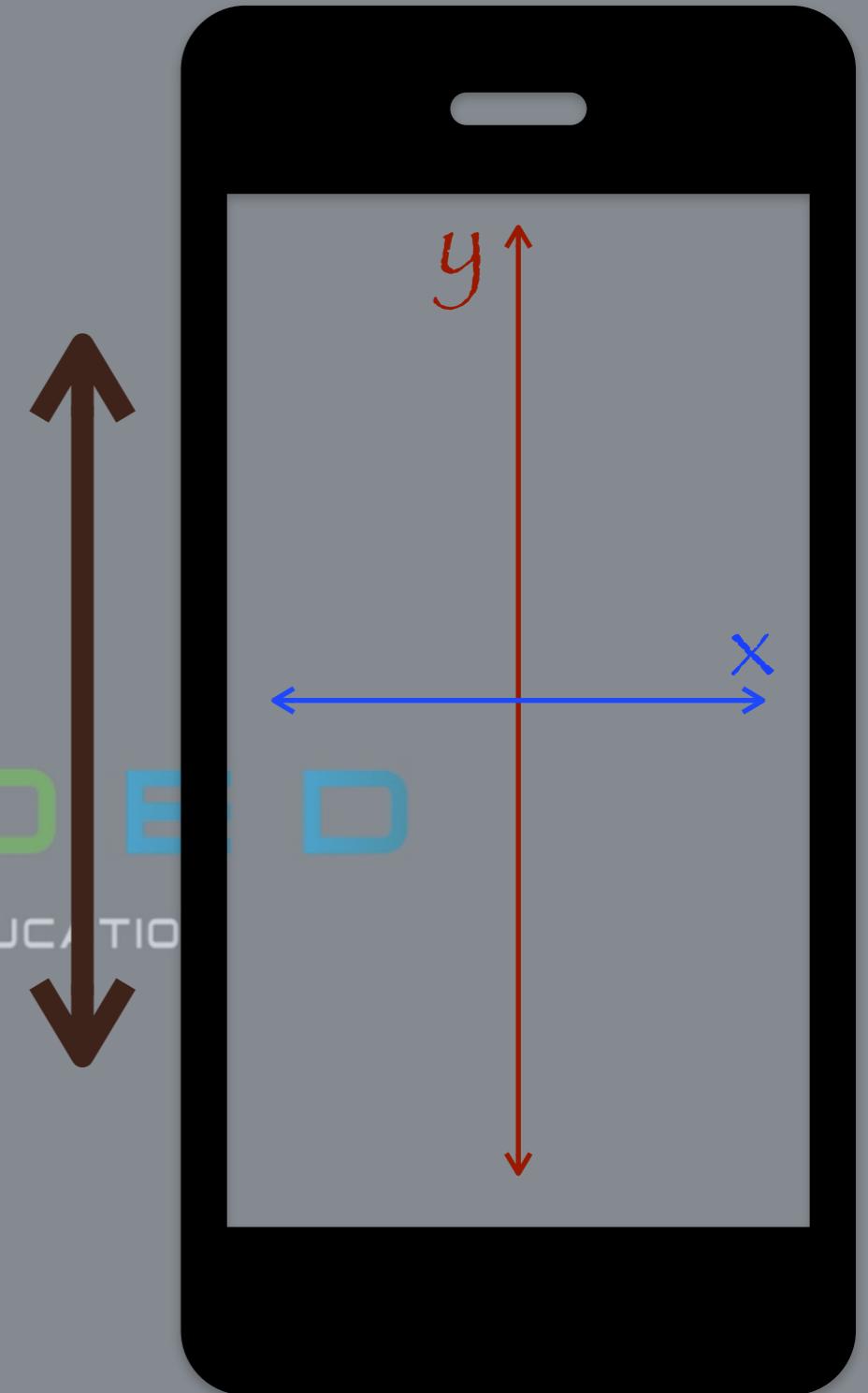
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Scrolling (UiScrollable)

- ◆ **Test Case:**

API Demos => Views

=>**Switches bul veltikla**



Working with elements

- ◆ Expandable list

API Demos

click Views then

click Expandable Lists

then click People Names

verify “Arnold” in ExpandedList



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working with element -

- ◆ Alerts/Popup(android)

Toast mesaj locate etmek kolay degil genellikle spy element olarak bulunuyor. Eger bulamazsanız genel kullanım olan “**“android.widget.Toast”** className of Toast. Developer far bu klasik kullanır. Eger birden fazla Toast mesaj varsa index alarak **“android.widget.Toast[1]”** seklinde yazabilirsiniz. Toast mesaji “name” attribute ile yazildigi icin “getAttribute(“name”)” ile yazıya ulasabilirsiniz

working with elements (ios)

- ◆ **Switch Element**
lunch UICatalog
click Switches
first switch on
second switch off
and verify them PROED



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working with element

- ◆ Alerts

ApiDemos => Views => popup menu

Popup Button => Add Button =>

verify toast Message

“Clicked popup menu item Add”



IOS Device



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Native App - Calculator

- ❖ iOS * * *

TEST CASE:

lunch app

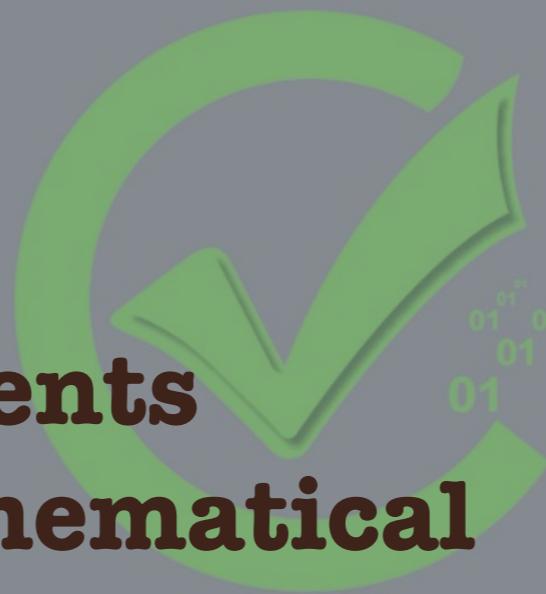
locate all elements

make any mathematical

operation(+,-,/,*)

check pre-result

verify result



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working with elements (ios)

- ◆ **Exercise:**

**Lunch UICatalog app on device
click Alert View =>Secure Text
Entry
provide a text (at least 5
char)and click ok**

Scrolling (iOS)

- ♦ Eski yontemler kullanımdan kalktı
JavaScriptExecuter kullanacağız

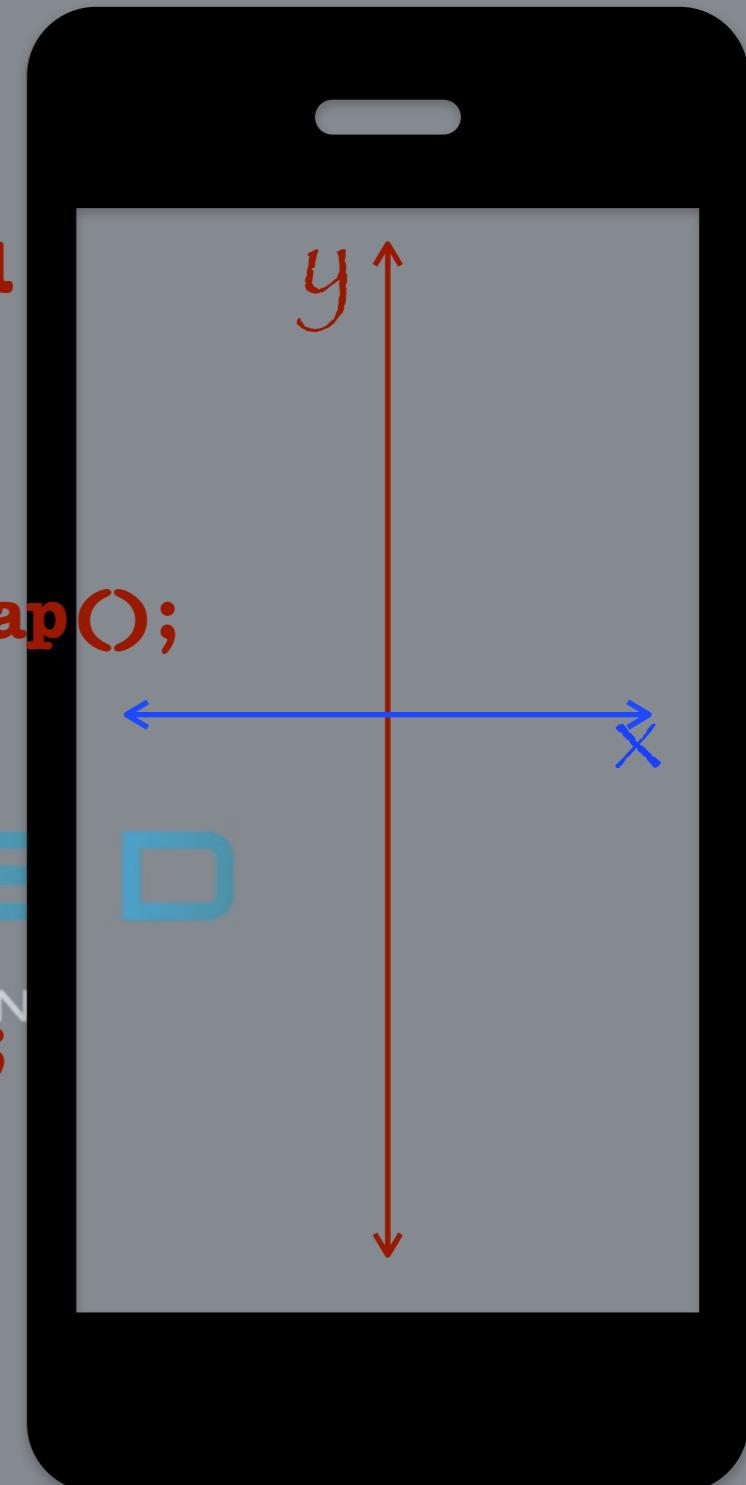
```
HashMap<String, Object> scrollObject = new HashMap();
```

```
scrollObject("direction", "down");
```

```
scrollObject("name", "value"); PRO E
```

```
driver.executeScript("mobile:scroll", scrollObject);
```

```
element bul ve tikla.
```



working with element - (ios)

- ◆ Alerts

UICatalog => Alert View

==>Simple

=>click OK



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working with elements (ios)

♦ PickerView(DropDown)

test case:

lunch UICatalog => picker view

then 50 200 150 PRO E D



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Web App Testing(safari)

- ◆ Xcode icicnde lazy olan araçlar var...
- ◆ “<https://amazon.com>” git
- ◆ sign in tikla
- ◆ “Welcome” yazisini onayla



working with elements (ios)

- ◆ **Text box**

Lunch **UICatalog** app on device
click Alert View =>Text Entry
provide a text and click ok 

Hybrid App Testing

- ❖ **real life challenges ***
- review (native-web app-hybrid)**



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