1. **What are the popular Mobile operating systems?**

Android OS: The Android operating system is the most popular operating system today. It is a mobile OS based on the Linux Kernel and open-source software. The android operating system was developed by Google. The first Android device was launched in 2008.

Bada (Samsung Electronics): Bada is a Samsung mobile operating system that was launched in 2010. The Samsung wave was the first mobile to use the bada operating system. The bada operating system offers many mobile features, such as 3-D graphics, application installation, and multipoint-touch.

BlackBerry OS: The BlackBerry operating system is a mobile operating system developed by Research In Motion (RIM). This operating system was designed specifically for BlackBerry handheld devices. This operating system is beneficial for the corporate users because it provides synchronization with Microsoft Exchange, Novell GroupWise email, Lotus Domino, and other business software when used with the BlackBerry Enterprise Server.

iPhone OS / iOS: The iOS was developed by Apple Inc. for use on its device. The iOS operating system is the most popular operating system today. It is a very secure operating system. The iOS operating system is not available for any other mobiles.

Symbian OS: Symbian operating system is a mobile operating system that provides a high-level of integration with communication. The Symbian operating system is based on the java language. It combines middleware of wireless communications and personal information management (PIM) functionality. The Symbian operating system was developed by Symbian Ltd in 1998 for the use of mobile phones. Nokia was the first company to release Symbian OS on its mobile phone at that time.

Windows Mobile OS: The window mobile OS is a mobile operating system that was developed by Microsoft. It was designed for pocket PCs and smart mobiles.

Harmony OS: The harmony operating system is the latest mobile operating system that was developed by Huawei for the use of its devices. It is designed primarily for IoT devices.

Palm OS: The palm operating system is a mobile operating system that was developed by Palm Ltd for use on personal digital assistants (PADs). It was introduced in 1996. Palm OS is also known as the Garnet OS.

WebOS (Palm/HP): The WebOS is a mobile operating system that was developed by Palm. It is based on the Linux Kernel. HP uses this operating system in its mobile and touchpads.

2.What according to you are the 5 challenges that impact mobile app testing?

Device Fragmentation

Users will use your application on various devices with different screen sizes, carrier settings, OS, and forms. Therefore, implementing a mobile app test strategy without solving the device fragmentation would be a significant obstacle.

Third-party integration

Most mobile app testers integrate third-party extensions without verifying their impact on the current app environment. Instead, you should always test the working of third-party integrations because they’re not part of the source code you have written. They also bring a

different set of dependencies you need to manage and check whether it works with your current ecosystem.

Browser fragmentation

Testing your application on various browsers is critical. You should test your mobile application on major mobile browsers such as Google Chrome, Mozilla Firefox, Opera, Safari, etc. Sometimes, your mobile app can be a progressive web app that operates through browsers.

OS fragmentation

Different mobile phones have different operating systems installed. So, if you haven't tested your app on them, it could bite you at the time of production and release. In addition, Android and iOS are major mobile platforms, which have 13 and 16 versions, respectively. Thus, covering all the mobile app testing strategy bases could prove challenging.

App security

During the initial phase of an app release, the QA team should conduct in-depth security testing of the application as security threats have become more dangerous. The nature of your app, OS

features, phone features, etc., plays a vital role in forming an app security test plan.

3.Why is mobile testing critical for businesses today?

Mobile Application Testing enables enterprises to build applications that are scalable and accessible across multiple platforms. It's a process to build an application software by testing it for its functionality, usability, and consistency. This can be done by automation as well as with manual testing.

- **ROI**: Most organizations would agree that the end objective of their business is to maximize ROI. Developing mobile-based applications requires investments in the form of finance, time, and efforts put in by the resources. While organizations understand the importance of testing these applications, most of them invest in performing only manual testing. Implementing mobile test automation will help them save both time and money, as also ensure app quality. With each upgrade in the operating system or change in source code, software tests need to be repeated to ensure removal of possible bugs. Test automation helps developers perform continuous testing at a much faster speed than manual testing. For example, while one manual tester can typically test 50 possible scenarios in a scheduled work day, on the other hand, tests can be finished using a 1000-test regression set within the span of a single day. It’s obvious that implementing test automation helps save considerable costs, increases go-to-market speed, thereby improving the RoI.

- **Increase in customer database:** Clean, bug free applications that provide quality, seamless functionality, and are known to take care of security concerns are those that can provide instant gratification to customers. Such applications will naturally be more popular than others and have larger acceptance in the customer world. Having a large, happy customer base is a dream come true for all businesses that want to thrive and succeed in today's digitally disruptive market.
- **Wider & Improved Test Coverage**: Continuous Test Automation increases the consistency, robustness, and range of testing thereby improving the software quality. Automated testing also helps accomplish tasks such as validating memory, database and file content – tasks that are difficult for manual testers to accomplish in a short period of time.
- **Non-stop Execution**: Test automation helps organizations overcome the most obvious challenge that of manual testing being impacted due to its repetitive and mundane nature of work and that the teams get tired. Test automation guarantees continuous, non-stop execution of tests all day long. Additionally, automating the tests frees you from having to monitor the tests throughout the entire process – with the promise of delivering perfect results on-time, every time. With mobile applications being continuously developed and released to the market, saving every second is critical for the businesses.
- **Seamless updates to the applications:** Even after an app is released to the market its evolution and development does not stop. There is a constant need for updates and improvements. If not done, it will lead to a bleak future for the app. Every time an app is upgraded,

performing continuous testing ensures that the app is compatible with the new upgrades. Businesses that do not upgrade their apps usually witness a decrease in the popularity of their apps as they are inconsistent with the current devices, hardware and OS versions.

4.What are the extensions for the Android and iOS executable files?

.ipa file extension is used for Apple iOS application files and Each ".ipa" file includes a binary for the ARM architecture and can only be installed on an iPhone or iOS-device. Full form of .ipa file is an iOS application archive file and It is usually encrypted with Apple's FairPlay DRM technology. I already know that this is a zip file, so you can uncompress all .ipa extension files by changing the extension to .zip and unzipping.

.apk Android is the world's most popular and open source mobile OS. Android users download more than 1.5 billion apps from Google Play each month. We already know that the file extension name of google's Android OS is .apk (Android application package). So APK is the package file format used by the Android OS for distribution and installation of smartphone apps. APK files are a type of archive file, specifically in ZIP format based on the JAR file format.

5.What are the Pros and Cons of Hybrid, Native and Web apps?List some examples of Hybrid, Native and Web apps that you have used.

Pros of Hybrid apps

- Lower Development Costs
- Fast Development
- Greater Market Reach
- Support for Cloud & Enterprise-Level Solutions

Cons of Hybrid apps

- Slow Performance
- Functionality Limitations
- Long Wait for New Features
- May Lack 3D Support

Examples of Hybrid apps

Twitter, Gmail

Pros of Native apps

- Speed
- Work offline
- Provide a recognizable look and feel
- Maintain aspect ratios

Cons of Native apps

- Lengthy downloading process
- No flexibility
- Expensive development
- Time-consuming development
- They require frequent upgrades

Examples of Native apps

WhatsApp and FaceBook

Pros of Web apps

- Easy access.
-
- Easy Development: Developing responsive design and restructuring the content to be properly displayed on a smaller screen/hardware will make any desktop website mobile friendly.
-
- Easy update: Just update in one location and all the users automatically have access to the latest version of the site.
-

- No installation required, as compared to native or hybrid apps.

Cons of Web apps

- Mobile websites cannot use some of the device's features. For example, access to the file system and local resources isn't available.
- Many existing websites don't support offline capabilities.
-
- Users won't have the app's icon on their home screen as a constant reminder. The website needs to be opened in a web browser only.
-
- While native and hybrid apps appear on the App Store and Google Play, web apps won't. So redistribution is not that sensible.

Example of Web apps
https://m.timesofindia.com/

6.List down the types of testing we perform for mobile apps and the differences between them.

➢ Functional Testing
➢ Compatibility Testing
➢ Localization Testing
➢ Performance Testing
➢ Security Testing
➢ Power Consumption Testing
➢ Interrupt Testing
➢ Usability Testing
➢ Installation Testing
➢ Uninstallation Testing
➢ Certification Testing
➢ Mobile UI Testing
- Screen Orientation
- Resolution
- Gestures (Multi touch, single touch, Long touch, short touch, swipe etc.)
- Soft and Hard Keys

7.What do you understand about the usability of a mobile app? Why is it important to be taken care of?

Professionals define usability as the quality attribute that assesses how easy a system interface is to use. Usability contributes to the effectiveness, efficiency, and satisfaction in which specified users achieve specified goals.

Mobile usability can play an important role in mobile marketing. If all processes on a web page are optimized for use with tablets or smartphones, it will positively affect the user experience. This in turn, means that users can complete purchases on mobile devices without problems.

8.When do you use Compatibility testing?

Compatibility testing is software testing which comes under the non functional testing category, and it is performed on an application to check its compatibility (running capability) on different platforms/environments. This testing is done only when the application becomes stable.

9.What do you mean by Soft Keys and Hard Keys in mobile?

Soft Key-A softkey is a key on a device which can have context-sensitive or user-programmable functions, but generally it just means it has more than one function. Unlike letters on the keyboard and number keys on cell phones which cannot be reprogrammed and are therefore considered as hard keys, softkeys can change function. One example of softkeys is the keyboard's

function or F-keys which have different specialized functions depending on the application and context.

Hard Key-By hardcoding a key into an application, a developer places sensitive information in an insecure storage location. These keys can be exposed in various ways, such as: Source Code Repositories: Applications commonly interact with APIs and need API keys or other authentication material to prove their identity.

10.Difference between Mobile application testing and web application testing?

Mobile App Testing:

Mobile app testing refers to the process of testing application software simply for controlling and handling mobile devices. It is used to test mobile apps for its functionality, usability, compatibility, etc.

Web App Testing:

Web app testing refers to the process of testing application software hosted on the web to ensure quality, functionality, usability, etc. It is also known as web testing or website testing.

11.What are all major networks to be considered while performing mobile application testing?

4G, 3G, 2G, and WIFI. 2G is a slower network, it's good if you verify your application on a slower network also to track your application performance.