Mobile App Development

Level 3: Student explored previously; second pathway specific course
Pathway(s): Coding; Web Design

Description

Mobile App Development is a course intended to teach students the basic concepts and skills of mobile app design. The course places an emphasis on the history of mobile technologies, design and development methodologies, code for mobile applications, application lifecycles, APIs, mobile device controls, user interfaces, deployment, publishing for mobile devices, developer tools, and career development. Upon completion of this course, proficient students will demonstrate an understanding of mobile app development concepts.

Student Learning Outcomes

Creativity and Innovation

1) Create effective user interfaces appropriate for a specified mobile device that is best suited for an identified purpose.
2) Create effective user interfaces for browser-based, native, and hybrid mobile applications.
3) Create mobile application components appropriate for identified needs.
4) Create browser-based applications for mobile devices.
5) Create native applications that can reside on specified mobile devices.
6) Create mobile applications that combine native and hybrid components.

Communication and Collaboration

1) Understand and discuss how teams function.
2) Use teamwork to solve problems.
3) Describe the development workflow of mobile applications.
4) Use time-management techniques to develop and maintain work schedules and meet deadlines and established mobile application project criteria.
5) Describe a problem solution.
6) Document and share problem solutions through various forms of media.

Research and Information Fluency

7) Analyze, identify, and describe mobile application project stakeholders and their perspectives.
8) Collect and analyze available data to identify mobile application project requirements.
9) Analyze, identify, and describe input, output, and processing requirements.
10) Analyze, identify, and define hardware and software specifications.

Critical Thinking, Problem Solving, and Decision Making

11) Explain design decisions based on the hardware considerations of the mobile device.
12) Compare and contrast available mobile technologies, including platforms and their operating systems.
13) Select available development approaches, including applications to specific technologies and platforms.

14) Determine the most appropriate solution for the development of a given mobile application, including browser-based, native, and hybrid approaches.
15) Compare and contrast available programming languages and how their use might be applied to specific technologies and platforms.
16) Identify and justify the selection of an appropriate programming language, including available resources and required interfaces.
17) Select an appropriate program development environment.
18) Identify and use available libraries.
19) Evaluate and justify the selection of appropriate options and components.
20) Compare and contrast available networks and their implications for mobile application development.
21) Identify design strategies related to mobile network and device security.

Digital Citizenship
22) Explore intellectual property, privacy, sharing of information, copyright laws, and software licensing agreements.
23) Model ethical acquisition and use of digital information.
24) Demonstrate proper digital etiquette when using networks, responsible use of software, and knowledge of acceptable use policies.
25) Model respect of intellectual property, including manipulating graphics, morphing graphics, editing graphics, and editing sound.
26) Investigate mobile device security measures such as passwords, virus detection, and virus prevention.
27) Describe potential risks and benefits associated with the use of mobile applications.
28) Identify current and emerging technologies related to mobile applications.
29) Evaluate technologies and assess their applicability to current mobile applications.

Technology Operations and Concepts
30) Understand the difference between desktop and mobile applications.
31) Understand hardware and software structures and requirement in the design of mobile applications.
32) Recognize multiple platforms and understand their associated requirements.
33) Recognize various program development environments.
34) Understand event-based programming and appropriate use.
35) Describe how memory management affects mobile applications.
36) Understand how low bandwidth and mobility of the device affect the design and mobile applications.
37) Identify applications that are best suited for mobile devices.
38) Understand the use of libraries when designing mobile applications.
39) Use a simulation tool to emulate a mobile device's functionality.
40) Use actual mobile devices to test mobile applications.