Applications, Social Media, Multimedia, Password Cracker

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Agenda

- Intro to Applications
- Intro to Social Media
- Intro to Multimedia
- Security
- Password Cracking
- Dictionary Attacks

Learning Objectives

- Grasp a basic understanding of application creation, social media, and multimedia
- Describe the relationship between applications, social media, and security
- Uncover the most common password cracking methods
- Take a deep dive into dictionary cracking

Application Introduction

- We all know about apps. They are in many places, but most people think of their smartphones. Do you have a smartphone? How many apps do you have?
  - Research shows that the average person has 80+ apps installed
  - The average person uses 9 mobile apps per day and 30 apps per month
  - The Apple App Store has 1.96 million apps available while the Google Play Store has 2.87 million.
- An application can be formally defined as computing software designed to help people perform an activity

Application Introduction

- Someone has to make all of those apps!
- When the creation of an app begins, several things must be considered
    - Market research
    - Target audience
    - Type of app
    - Resources
    - Security

Social Media Introduction

- Another modern staple in everyday digital use is social media
- Social media networks are interactive Web 2.0 Internet-based applications
- User-generated content and data generated through all online interactions fuels social media
- Users create service-specific profiles for each social media network
- Social media operates in a dialogic transmission system (many sources to many receivers)
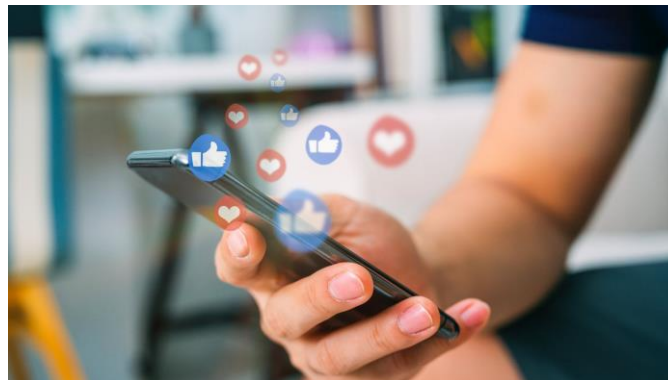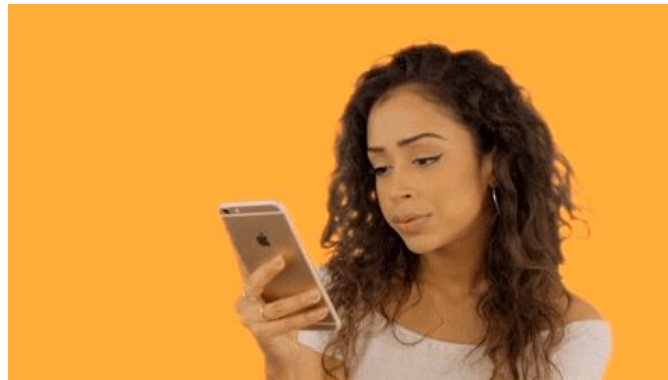
Social Media Introduction

- You could probably recognize most of the top social media networks simply by the logo

Social Media Introduction

- Some of the statistics regarding social media are astounding!
    - Statistics from 2019 show that there are 3.5 billion social media users worldwide (this equates to about 45% of the current population)
    - 90.4% of Millennials, 77.5% of Generation X, and 48.2% of Baby Boomers are active social media users
    - The average user spends approximately 3 hours per day on social networks

Multimedia Introduction

- Multimedia is a computerized method of presenting information combining textual data, audio, visuals (video), graphics and animations
- Multimedia can be used for numerous purposes
    - Voicemail
    - Email
    - Advertising
    - Entertainment
    - Education
    - Banking
- Multimedia is absolutely necessary for effective and attractive applications and social media platforms

Security

- One of the biggest things to tie together applications and social media is the need for security
- In order to produce high quality applications and social media platforms, or even to update and maintain applications and social media, security must be at the forefront

Security

- There are multiple ways that security can be enhanced, such as requiring a password, and subsequently having password length requirements and character combination requirements
- To further strengthen the security of applications and social media many platforms are switching to two-factor authentication
  - Two-factor authentication is when an extra step is added to the login process, such as a code sent to your phone or a fingerprint scan, that helps verify your identity and prevent cyber criminals from accessing your private information
  - Two-factor authentication typically consists of a combination of knowledge, possession, and inheritance
    - Knowledge is something that you know (i.e. password)
    - Possession is something that you have (i.e. keycard)
    - Inheritance is something that you are (i.e. fingerprint)

Password Cracking

- Password cracking is the process of recovering passwords from data that has been stored in or transmitted by a computer system in scrambled form
- There are a number of password cracking methods
  - Dictionary attack
  - Brute force attack
  - Rainbow table attack
  - Phishing
  - Social engineering
  - Malware
  - Offline cracking
  - Shoulder surfing

Dictionary Password Cracking

- Cracking dictionaries are large lists of data, often cleartext strings, that can be used to crack passwords
- A dictionary attack is where the attacker, instead of trying all possible combinations, tries a password from a dictionary file
  - The file will have some of the most commonly used passwords and iterations to those passwords since so many people use similar passwords to their old passwords.
  - The hacker can choose to add different passwords to the dictionary

Resources

- Mobile App Download and Usage Statistics (2021)
  https://buildfire.com/app-statistics/
- 8 Steps You Must Take Before Starting Mobile App Development
  https://buildfire.com/steps-before-starting-mobile-app-development/
- 10 Social Media Statistics that You Need To Know
  https://www.oberlo.com/blog/social-media-marketing-statistics
- 21 Top Social Media Sites to Consider for Your Brand
  https://buffer.com/library/social-media-sites/
- Password Cracking Dictionaries
  https://www.enzoic.com/password-cracking-dictionaries/
- Most Popular Password Cracking Techniques: Learn How to Protect Your Privacy
  https://cybernews.com/best-password-managers/password-cracking-techniques/

Activity

Please complete the password cracking activity