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SHA-3 in .NET 8

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⚡ SHA-3 in .NET 8

.NET 8 is packed with great features.

One of them is the addition of SHA-3

The third family of the Secure Hashing Algorithms

SHA-3 is also known and stemmed from Keccak, a cryptographic function used for hashing, authentication, encryption and secure pseudo random number generation

Check this quick guide to learn more about SHA-3 and how can you use it .NET 8

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What is SHA?

SHA is short for Secure Hashing Algorithm

A series of families of secure Hashing algorithms starting from SHA-0, SHA-1, SHA-2 and SHA-3
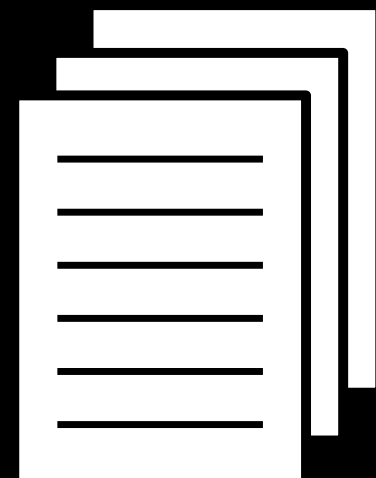
SHA Usages

- Storing & validating Passwords
- Cryptocurrencies like (Bitcoin)
- Transport Layer Security (TLS)
- Internet Security Protocol (IPsec)
- Digital Signatures using Hashed Message Authentication Codes (HMAC)

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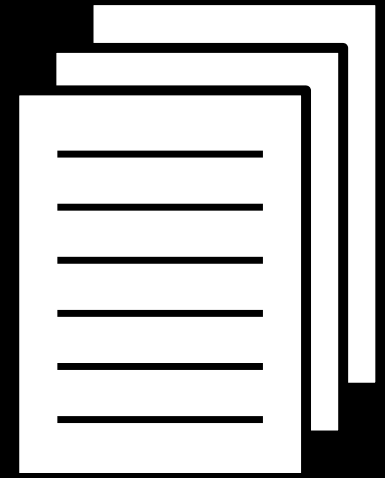
SHA-2 family includes 6 variants most commonly used are:

SHA-256 and SHA-512

SHA-3 family includes 4 variants most commonly used are:

SHA3-256 and SHA3-512

SHA-3 runs on a different hashing algorithm than SHA-2

SHA-3 is reportedly faster than SHA-2 in some architectures

SHA-3 is stemmed from a cryptographic function known as **Keccak** (pronounced Ketchak)

Keccak is used for hashing, authentication, encryption and Secure Pseudo Random Number Generation

SHA-3 has similar
use cases for SHA-2

SHA-3 has started to
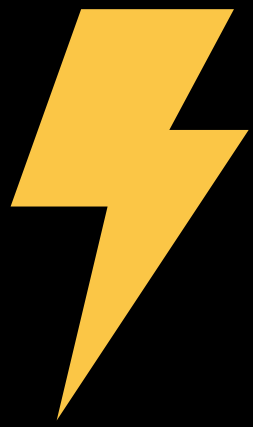replace SHA-2
wherever is required

.NET 8 introduced SHA-3

Since SHA-3 isn't supported (yet) on all platforms

You can use the IsSupported flag to check if the platform or operating supports the SHA-3 Hashing Functions

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SHA-3 Hashing in .NET 8

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```csharp
if (SHA3_256.IsSupported)
{

    var value = "SHA-3 in .NET 8 - CodingSonata.com";
    byte[] data = Convert.FromBase64String(value);

    byte[] hashedData = SHA3_256.HashData(data);
    string hash = Convert.ToBase64String(hashedData);

    Console.WriteLine($"Data is {value}");
    Console.WriteLine($"hash is {hash}");

}
```

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