

# How to crypt a password using `bcryptjs`

## Hashing:

A hash function is any function that can map data of arbitrary size to fixed-size values, though some hash functions support variable length output. The values a hash function returns are hash values, hash codes, hash digests, digests, or simply hashes

## Salt (cryptography):

a salt is random data fed as an additional input to a one-way function that hashes data, a password

### 1- Without salt included:

*hash(password)*

Username	String to be hashed	Hashed value = SHA256
<u>user1</u>	<u>password123</u>	<u>EF92B778BAFE771E89245B89ECBC08A44A4E166C06659911881F383D4473E94F</u>
<u>user2</u>	<u>password123</u>	<u>EF92B778BAFE771E89245B89ECBC08A44A4E166C06659911881F383D4473E94F</u>

### 2- With salt included

Username	<u>Salt value</u>	String to be hashed	Hashed value = SHA256 (Password + Salt value)
<u>user2</u>	<u>)&lt;,-&lt;U(jLezy4j&gt;*</u>	<u>password123)&lt;,-&lt;U(jLezy4j&gt;*</u>	<u>6058B4EB46BD6487298B59440EC8E70EAE482239FF2B4E7CA69950DFBD5532F2</u>
user1	D;%yL9TS:5PaLS/d	<u>password123D;%yL9TS:5PaLS/d</u>	<u>9C9B913EB1B6254F4737CE947EFD16F16E916F9D6EE5C1102A2002E48D4C88BD</u>

## Steps to hash a password in Node Server :

- Install Bcrypt by `npm i bcryptjs`

The bcrypt library holds two main functions Hash, Compare

- hash(s: string, salt: number)

Takes a string and salt, returns a hash

- compare(s: string, hash: string)

Takes two strings, inputted password and saved hash, returns a boolean