CSS Animation

CSS animation allows you to **animate HTML elements over time**, unlike transition which only reacts to state changes like hover or focus.

Animations in CSS use:

1. **@keyframes** → Defines the stages of the animation.
2. **animation properties** → Applied to the element to control how the animation behaves.

1️⃣ **@keyframes :** defines the intermediate steps of an animation.

Syntax:

```
@keyframes animationName {
  0%   { /* starting state */ }
  50%  { /* mid state */ }
  100% { /* ending state */ }
}
```

- % indicates **progress of the animation**.
- You can also use **from** (0%) and **to** (100%):

```
@keyframes slide {
  from { transform: translateX(0); }
  to   { transform: translateX(200px); }
}
```

2️⃣ **Animation Properties**

Property	Description	Example
animation-name	Name of keyframes to apply	animation-name: slide;
animation-duration	How long one cycle takes	animation-duration: 3s;
animation-timing-function	Speed curve	linear, ease, ease-in, ease-out, ease-in-out
animation-delay	Wait before starting	animation-delay: 1s;
animation-iteration-count	How many times to repeat	1, 2, 3, …infinite
animation-direction	Forward, reverse, alternate	normal, reverse, alternate, alternate-reverse
animation-fill-mode	How element looks before/after	none, forwards, backwards, both
animation-play-state	Pause or running	running, paused

Types of Animation Effects

1. **Movement** → translateX, translateY, translate3d
2. **Rotation** → rotate, rotateX, rotateY
3. **Scaling** → scale, scaleX, scaleY, scale3d
4. **Skewing** → skew, skewX, skewY
5. **Opacity/Color Change** → Fade-in/out, background color changes
6. **Bounce / Elastic / Shake** → Using translate and keyframes

Animation Timing Functions

Function	**Effect**
linear	Constant speed
ease	Starts slow, speeds up, slows down
ease-in	Starts slow
ease-out	Ends slow
ease-in-out	Starts & ends slow
step-start, step-end	Jumps in steps

Animation Direction

- normal → Forward only
- reverse → Plays backward
- alternate → Forward then backward
- alternate-reverse → Backward then forward