Scheduling:

In Kubernetes, scheduling refers to the process of assigning Pods to Nodes so that the Kubelet can run them.

Scheduling Workflow:

1. Pod Creation: When you deploy a pod using a manifest file or kubectl commands, it enters an unscheduled state.
2. Scheduler Evaluation: The scheduler continuously scans the list of unscheduled pods and available nodes.
3. Predicate Checks: For each pod, the scheduler evaluates the predicates against all nodes in the cluster. Nodes that don't meet the pod's requirements are filtered out.
4. Priority Scoring: If multiple nodes pass the predicate checks, the scheduler assigns a priority score to each based on pre-defined rules (e.g., node with most free resources gets a higher score).
5. Pod Binding: The scheduler selects the node with the highest priority score and binds the pod to that node. This makes the pod "scheduled."
6. Kubelet Communication: The Kubernetes API server informs the kubelet (agent running on each node) about the scheduled pod.
7. Pod Execution: The Kubelet on the designated node pulls the container image(s) from the container registry, creates and starts the container(s) within the pod, and allocates the necessary resources.

Ways to Achive Scheduling:

By default, Kubernetes implements a built-in scheduling framework that you don't need to configure manually. However, you can influence the scheduling process in a few ways.

1. Manual Scheduling
2. Pod Annotation and Labels
3. Node Selectors
4. Node Affinities
5. Taint and Tolerations
6. Custom Schedulers

Taint-Effects are:

1. NoSchedule
2. PreferNoSchedule
3. NoExcuse

Commands

* kubectl taint nodes node-name key=value:taint-effect
* kubectl taint nodes node02 color=blue:NoSchedule