# Agent

* When you build and deployment runs, the system begins one or more jobs.
* An Agent is installable software that runs one job at a time.
* To build your code or deploy your software using Azure Pipeline, you need at least one agent.
* In Azure DevOps we can use two types of agent.
  + Microsoft-hosted agent
    - Agents are hosted and installed by Microsoft automatically
  + Self-hosted agent
    - Agent is creating by our self.

# Approvals

* Approvals are a set of validations which are required before a deployment can be performed.
  + Example: Getting permission from someone in a team before the deployment on production.

# Artifacts

* An Artifact is a collection of files or packages which are created by a build run.
* These artifact are then made available for the next i.e. deployment.

Artifact

Deployment

APP

* The output of build pipeline or source of release pipeline is called artifacts

# Environments

* Environment is the place where we deploy the application
* An Environment is a collection of resources
* Example-VMs, Container, WebApp etc.
* A release pipeline can deploy the code on one or more vms(Environments) after the build pipeline is completed.

# Job

* A job represents an execution boundary of a set of steps.
* All of the steps run together on the same agent.
* For Example, you might build two configurations-x86 and x64.In this case you have one build stage and two jobs.

# Run

* Execution of a pipeline (Build or Release) is known as run.

# Stage

* A Stage is used to mark separation of concerns.
* Example: Creation build for QA, Staging, Production etc.
* Each stage contains one or more jobs
* Stage is very important in adding an extra level of validation before your code goes to production.

# Tigger

* A trigger is a set up that tells the pipeline when to run.
* We can configure a pipeline When
  + New Push in repo
  + At scheduled time
  + Upon completion of another build.

## **Azure DevOps Pipeline concepts**

1. **Pipeline:** It is a workflow that defines how our test, build, and deployment steps are run.
2. **Stage:** It is a logical boundary in the pipeline. It can be used to mark the separation of concerns. Each stage contains one or more jobs.
3. **Job:** A stage can contain one or more jobs. Each job runs on an agent. It represents an execution boundary of a set of steps.
4. **Step:** It is the smallest building block of a pipeline. It can either be a script or a task. A task is simply an already created script offered as a convenience to you.
5. **Agent and Agent pools:** An agent is an installable software that runs one job at a time. Instead of managing each agent individually, you organize agents into agent pools.
6. **Artifact:** It is a collection of files or packages published by a run. The Artifact is made available to subsequent tasks, such as distribution or deployment.
7. **Trigger:** It is something that is set up to tell the pipeline when to run. We can configure a pipeline to run upon a push to the repository, at scheduled times, etc.
8. **Environment:** It is a collection of resources, where you deploy your application. It contains one or more virtual machines, containers, web apps, etc.
9. **Checks:** Checks define a set of validations required before a deployment can be performed.
10. **Runs:** It represents a single execution of a pipeline and collects the logs associated with running the steps and the results of running tests.