* Course Overview
* Introduction
  + CloudFormation
    - Foundational deployment technology
* CloudFormation Template
  + Infrastructure as code
  + Free to use
  + Resource cost
  + AWS template
    - Template version
    - Description
    - Metadata
    - Parameters
    - Mappings
    - Conditions
    - Transforms
    - Resources
    - Outputs
    - Intrinsic functions
  + Two valid template formats: YAML and JSON
  + Putting it all together
    - Create or update template
    - Save locally or in s3 bucket
    - Aws cloudformation creates stack from template
* Planning with CloudFormation
  + Planning and Organizing
    - Lifecycle and ownership
    - Export shared resources
    - IAM Access Control
    - Reuse templates
    - Verify quotas
    - Nested stacks
  + Template Best Practices
    - Do not embed credentials
    - Aws-specific parameter types
    - Parameter constraints
    - AWS cloud formation Init
    - Latest helper scripts
    - Validate templates
* Demo: Simple Load Balancer Y..
  + In a code editor
  + Create a file with .yml extension
  + Ex)
    - AWSTemplateFormatVersion: 2021-05-12
    - Description: >- This template creates two Amazon EC2 instances, and an Application Load Balancer
    - Parameters:
      * KeyName: …
      * ….
    - …
  + In aws console
    - Upload template
    - Then specify stack details
    - Enter parameters(KeyName, Subnets, VPC)
* Demo: Simple Load Balancer J…
  + Cloud formation template using json
  + Ex)
    - “AWSTempalteFormatVersion”: “2021-5-13”
    - “Description”: “…’
    - “Parameters”: { … }
    - ….
* Beyond a Basic CloudFormati…
* Demo: Deploying a Web Appli….
* Wrap up
* Introduction
  + CloudFormation CLI Capabilities
* Command Line Interface(CLI)
  + To validate a template for syntactic error
    - ‘aws cloudformation validate-template --template-url [template url]’
  + Creating a stack
    - aws cloudformation create-stack --stack-name [stack name] --template-body [file path] -- parameters [parameters]
  + describing stack events
    - aws cloudformation describe-stack-events --stack-name [stack name]\
  + listing resources
    - aws cloudformation list-stack-resources --stack-name [stack name]
  + listing stacks
    - aws cloudformation list-stacks --stack-status-filter CREATE\_COMPLETE
  + describing stacks
    - aws cloudformation describe-stacks --stack-name [stack name]
  + deleting a stack
    - aws cloudformation delete-stack --stack-name [stack name]
* Demo: Create a Stack with CLI
  + go to ‘<https://aws.amazon.com/powershell>’ to download the powershell and the cli
  + create an access key in aws console
  + type ‘aws configure’ to add access keys from the cmd
  + create stack
    - aws cloudformation create-stack --stack-name [stack name] --template-body [file path] --parameters ParameterKey=KeyName,ParameterValue=[key name] ParameterKey=Subnets, ParameterValue=[sub nets] ParameterKey=VPC,ParameterValue=[vpc]
  + see in progress event message for stack
    - aws cloudformation describe-stack-events --stack-name [stack name]
  + see status of stack
    - aws cloudformation describe-stack --stack-name[stack name]
  + to list stack and filter
    - aws cloudformation list-stacks --stack-status-filter CREATE\_COMPLETE
  + to delete stack
    - aws delete-stack --stack-name [stack name]
* CloudFormation Sample Templates
  + aws provides a library of existing sample templates than can be used to deploy
  + there are region specific templates
  + there are also application framework
* Demo: LAMP Sample Stack
  + search aws sample templates
  + download the sample template for your region
* CloudFormation Sample Servi…