Section and SubSection with topic descriptions	GCP Documentation	ACG Videos	Youtube videos	Other
* The A Cloud Guru (ACG) video are referencing the Google Certified Associate Cloud Engineer 2020 course				

1. Setting up a cloud solution environment

Section and SubSection with topic descriptions	GCP Documentation	ACG Videos	Youtube videos	Other
1.1 Setting up cloud projects and accounts. Activities include:				
Creating projects	Create a project			
Assigning users to predefined IAM roles within a project	IAM QuickStart			
Managing users in Cloud Identity (manually and automated)				
Enabling APIs within projects	Enabling APIS			
	Monitoring Workspaces			
Provisioning one or more Stackdriver workspaces				
	Monitoring workspaces Create			
1.2 Managing billing configuration. Activities include:	Billing Concepts			
Creating one or more billing accounts	Manage BIlling Account	Billing Access		
Linking projects to a billing account	enable billing for existing project	Billing Access Control		
		Set Up Billing Alert		
Establishing billing budgets and alerts	How to: budget			
		Set Up Billing Export		
Setting up billing exports to estimate daily/monthly charges	Export Data bigQuery			
	Command Line interface overview			
1.3 Installing and configuring the command line interface (CLI), specifically the Cloud SDK (e.g., setting the default project).	.			
	.			
	SDK install			
	SDK Config			

2. Planning and configuring a cloud solution

Section and SubSection with topic descriptions	GCP Documentation	ACG Videos	Youtube videos	Other
2.1 Planning and estimating GCP product use using the Pricing Calculator	Calculator			
2.2 Planning and configuring compute resources. Considerations include:				
Selecting appropriate compute choices for a given workload (e.g., Compute Engine, Google Kubernetes Engine, App Engine, Cloud Run, Cloud Functions)	Compute Engine			
	.			
	Cloud Run			
	Kubernetes Engine			
Using preemptible VMs and custom machine types as appropriate	Preemptible VM Instances			
2.3 Planning and configuring data storage options. Considerations include:				
st	Databases			
	Cloud SQL			
	Cloud Spanner			
	Cloud Spanner Quick Start			
Choosing storage options (e.g., Standard, Nearline, Coldline, Archive)	Storage Classes			
2.4 Planning and configuring network resources. Tasks include:				
Differentiating load balancing options	Choosing a Load balancer			
Identifying resource locations in a network for availability	Locations	GCP: Question		
Configuring Cloud DNS	DNS Quick Start			

3. Deploying and implementing a cloud solution

Section and SubSection with topic descriptions	GCP Documentation	ACG Videos	Youtube videos	Other
3.1 Deploying and implementing Compute Engine resources. Tasks include:				
Launching a compute instance using Cloud Console and Cloud SDK (gcloud) (e.g., assign disks, availability policy, SSH keys)	SDK SSH			
	SDK Instance Create			
	Quick start creating a new instance CLI			
	Quickstart Creating linux instance			
	Setting instance Availability policies			
	Creating and attaching disk			
Creating an autoscaled managed instance group using an instance template	Autoscaler overview			
	Instance Templates			
Generating/uploading a custom SSH key for instances	Adding and removing ssh keys			
Configuring a VM for Stackdriver monitoring and logging	Stackdriver monitoring			
Assessing compute quotas and requesting increases	Compute quotas			
Installing the Stackdriver Agent for monitoring and logging				
3.2 Deploying and implementing Google Kubernetes Engine resources. Tasks include:			Kubernetes Apps on Day 2	
Deploying a Google Kubernetes Engine cluster	GKE Getting started			
Deploying a container application to Google Kubernetes Engine using pods	Deploying a Sample Application			
Configuring Google Kubernetes Engine application monitoring and logging	Google Cloud operations suite for GKE			
3.3 Deploying and implementing App Engine, Cloud Run, and Cloud Functions resources. Tasks include, where applicable:				
Deploying an application, updating scaling configuration, versions, and traffic splitting	Deploying an application : App Engine			
	Deploying an application: Cloud Run			
	Cloud Run QuickStarts			
	Deploying an application Cloud Functions			
				Creating a python App with Pub Sub
Deploying an application that receives Google Cloud events (e.g., Cloud Pub/Sub events, Cloud Storage object change notification events)	Cloud Run Recieve storage events			
3.4 Deploying and implementing data solutions. Tasks include:				
Initializing data systems with products (e.g., Cloud SQL, Cloud Datastore, BigQuery, Cloud Spanner, Cloud Pub/Sub, Cloud Bigtable, Cloud Dataproc, Cloud Dataflow)	Cloud Bigtable Cluster and Nodes			Qwiklabs
				Cloud Labs Cloud Bigtable
	Using Pub Sub with Cloud Run			
	Cloud Datastore Overview			
	Accessing your database Cloud datastore app engine			
Loading data (e.g., command line upload, API transfer, import/export, load data from Cloud Storage, streaming data to Cloud Pub/Sub)				
3.5 Deploying and implementing networking resources. Tasks include:				
Creating a VPC with subnets (e.g., custom-mode VPC, shared VPC)	Shared VPC			
Launching a Compute Engine instance with custom network configuration (e.g., internal-only IP address, Google private access, static external and private IP address)	Static External IP			
	Private Access			
	Internal Static IP			
	VPC multiple Interfaces			
Creating ingress and egress firewall rules for a VPC (e.g., IP subnets, tags, service accounts)	VPC Firewalls Overview			

	VPC Network	
	Network Tags	
Creating a VPN between a Google VPC and an external network using Cloud VPN		
Creating a load balancer to distribute application network traffic to an application (e.g., Global HTTP(S) load balancer, Global SSL Proxy load balancer, Global TCP P	TCP Proxy	
	Overview	
	SSL Proxy	
	Global HTTPS	
	Regional Networkload balancer	
	Layer 7 Regional Internal Load Balancer	

3.6 Deploying a solution using Cloud Marketplace. Tasks include:

Browsing Cloud Marketplace catalog and viewing solution details	Overview	
Deploying a Cloud Marketplace solution	Deploying Security Software Agents	
	Deploying kubenetes apps	
	Deploying to Non GKE Clusters	

3.7 Deploying application infrastructure using Cloud Deployment Manager. Tasks include:

Developing Deployment Manager templates	Creating a basic template	
	Quickstart	
Launching a Deployment Manager template	Tutorial: Cloud Shell	

4. Ensuring successful operation of a cloud solution

4.1 Managing Compute Engine resources. Tasks include:

Managing a single VM instance (e.g., start, stop, edit configuration, or delete an instance)	Starting and stopping an instance	
	Deleting an instance	
	Updating instance properties	
	Deleting an instance	
SSH/RDP to the instance	SSH to instance	
	RDP to an instance	
Attaching a GPU to a new instance and installing CUDA libraries	GPUs and cloud engines	
Viewing current running VM inventory (instance IDs, details)		
Working with snapshots (e.g., create a snapshot from a VM, view snapshots, delete a snapshot)	Snapshot best Practices	
	Working with persistent disks: snapshot	
Working with images (e.g., create an image from a VM or a snapshot, view images, delete an image)	Create an image	
	Custom Image	
Working with instance groups (e.g., set auto scaling parameters, assign instance template, create an instance template, remove instance group)	Creating MIGS	
	Working with managed instances	
Working with management interfaces (e.g., Cloud Console, Cloud Shell, GCloud SDK)		

4.2 Managing Google Kubernetes Engine resources. Tasks include:

Viewing current running cluster inventory (nodes, pods, services)	Cluster administration Overview	
	GKE cluster Observation	
Browsing the container image repository and viewing container image details		
Working with node pools (e.g., add, edit, or remove a node pool)		
Working with pods (e.g., add, edit, or remove pods)	Concepts Pods	
Working with services (e.g., add, edit, or remove a service)		
Working with stateful applications (e.g. persistent volumes, stateful sets)		
Working with management interfaces (e.g., Cloud Console, Cloud Shell, Cloud SDK)		

4.3 Managing App Engine and Cloud Run resources. Tasks include:

Adjusting application traffic splitting parameters		
Setting scaling parameters for autoscaling instances		
Working with management interfaces (e.g., Cloud Console, Cloud Shell, Cloud SDK)	Management	
	Cloud Shell	
	Cloud API	
	Cloud Console	

4.4 Managing storage and database solutions. Tasks include:

Moving objects between Cloud Storage buckets	Object actions	
Converting Cloud Storage buckets between storage classes	Change object Storage Classes	
Setting object life cycle management policies for Cloud Storage buckets	Managin lifecycles	
	Liecycles overview	
Executing queries to retrieve data from data instances (e.g., Cloud SQL, BigQuery, Cloud Spanner, Cloud Datastore, Cloud Bigtable)	BigQuery querying overview	
	CloudSql insights overivew	
	Datastore Queries	
	Query Bigtable	
	Cloud Spanner Query syntax	
Estimating costs of a BigQuery query	Estimate Cost	
Backing up and restoring data instances (e.g., Cloud SQL, Cloud Datastore)	CloudSql Backup overview	
	Datastore Import Export	
Reviewing job status in Cloud Dataproc, Cloud Dataflow, or BigQuery	BigQuery Manging Jobs	
	Dataflow Describe Jobs	
	Dataproc monitoring	
Working with management interfaces (e.g., Cloud Console, Cloud Shell, Cloud SDK)		

4.5 Managing networking resources. Tasks include: — Using VPC

Adding a subnet to an existing VPC	Adding subnet	
Expanding a subnet to have more IP addresses	Expangins a Subnet	
Reserving static external or internal IP addresses	Reserving Internal IPs	
	Reservin External IPs	
Working with management interfaces (e.g., Cloud Console, Cloud Shell, Cloud SDK)		

		Operations and management
4.6 Monitoring and logging. Tasks include:		
Creating Stackdriver alerts based on resource metrics	Operations Suite Alerting Policy	See line 153
Creating Stackdriver custom metrics	Using Custom metrics	See line 153
	Creating Custom metrics	
Configuring log sinks to export logs to external systems (e.g., on-premises or BigQuery)	Log Exports	
	Logging BigQuery	
Viewing and filtering logs in Stackdriver	Legacy Viewer	See line 153
Viewing specific log message details in Stackdriver	See Legacy Viewer	See line 153

Using cloud diagnostics to research an application issue (e.g., viewing Cloud Trace data, using Cloud Debug to view an application point-in-time)	Cloud Trace Quickstart Cloud Debugger Setup Using Debugger logpoints	See line 153
Viewing Google Cloud Platform status	GCP Status page	
Working with management interfaces (e.g., Cloud Console, Cloud Shell, Cloud SDK)		
5. Configuring access and security		Chapter 10
5.1 Managing identity and access management (IAM). Tasks include:		
Viewing IAM role assignments	Viewing current Access	IAM Breakdown Permissions and Roles IAM Breakdown: Members and Groups
Assigning IAM roles to accounts or Google Groups	Granting Access	
Defining custom IAM roles	Creating Custom Roles	
5.2 Managing service accounts. Tasks include:		
Managing service accounts with limited privileges	Managing Service accounts	Hands On lab: Understanding Service acounts
Assigning a service account to VM instances	Enabling service accounts for instances	See Line 172
Granting access to a service account in another project		See Line 172
5.3 Viewing audit logs for project and managed services.	Audit logs overview	
	Services with audit logs	
	Understanding Audit Logs	

NICE TO HAVES

GCP Cloud Architecture tutorials	https://cloud.google.com/docs/tutorials	
Intro to the Exam Guide		