

# Work a Deal: Solution Sizing and Costing Exercise

1 hour 30 minutes      No cost

## Overview

This lab will teach you how to map customer's SAP infrastructure requirements to Google Cloud services. You will then learn how to use the SAP Pricing Tool to price multiple SAP landscape tiers and applications.

This lab will provision a temporary Google account which you will use to complete the tasks outlined in the lab manual. Follow the steps below to generate these credentials.

## Setup and requirements

### What you'll need

To complete this lab, you'll need:

- Access to a standard internet browser (Chrome browser recommended).
- Time. Note the lab's **Completion** time in Qwiklabs, which is an estimate of the time it should take to complete all steps. Plan your schedule so you have time to complete the lab. Once you start the lab, you will not be able to pause and return later (you begin at step 1 every time you start a lab).
- You do **NOT** need a Google account. An account and associated resources are provided to you as part of this lab.
- If you already have your own Google account, make sure you do not use it for this lab.
- If your lab prompts you to log into the console, **use only the student account provided to you by the lab.** This prevents you from incurring charges for lab activities in your personal Google account.

Use a new Incognito window (Chrome) or another browser for the Qwiklabs session. Alternatively, you can log out of all other Google/Gmail accounts before beginning the labs.



## Start your lab

- When you are ready, click **Start Lab**.

You can track your lab's progress with the status bar at the top of your screen.

**Creating a Virtual Machine**

🕒 30m access · 30m completion

★★★★☆ Rate Lab [Lab Details](#)

LAB RESOURCES CONTENTS

**CONNECTION DETAILS**

[OPEN GOOGLE CONSOLE](#)

Username: .....

Password: .....

GCP Project ID:

**START LAB** 00:30:00

# CREATING A VIRTUAL MACHINE

**Important:** What is happening during this time?

Your lab is spinning up an account behind the scenes and the permissions for you to control the resources you will need to run the lab. This means that instead of spending time manually setting up an account and building resources from scratch as part of your lab, you can begin learning more quickly.

## Find your lab's Google account username and password

- To access the resources for this lab, locate the Connection Details panel in Qwiklabs. Here you will find the account ID and password for the temporary Google account that you'll be to complete the steps in this exercise:

**CONNECTION DETAILS**

**OPEN GOOGLE CONSOLE**

**USERNAME**  
google822-student@qwiklabs.net

**PASSWORD**  
TZjR4X7B6

If your lab provides other resource identifiers or connection-related information, it will appear on this panel as well.

## Sign in to your Google account

1. Use the Qwiklabs browser tab/window (preferably in Incognito mode) or the separate browser you are using for the Qwiklabs session and open the Google Sign in page in a new tab. You will be brought to the following page:



# Sign in

Use your Google Account

Email or phone

[Forgot email?](#)

Not your computer? Use Guest mode to sign in privately.

[Learn more](#)

[Create account](#)

[Next](#)

2. Paste in the Username and then the Password as prompted. Accept the terms and conditions.

Because this is a temporary account, which you will only have access for this one lab:

- Do not add recovery options
- Do not sign up for free trials

Now that you are logged in, you are ready to continue with the hands-on portion of this lab.

## Task 1. Collect and gather necessary information

For the purposes of this lab, the hard part of collecting and gathering customer landscape information is already completed. In this section you will access and explore the completed customer landscape details and sizing reports.

All of this information is hosted in a Google Sheet that has various tabs. You will make a copy of this sheet so that you can reference components and map customer requirements to Google machine types.

To access this sheet:

1. Open a new tab in your browser. Ensure this is the same window that you logged into with your temporary Qwiklabs Google account.
2. Open Google Sheets to make a copy of the GCSAP-C02 [INPUT] Hands-On Lab - Work a Deal - Customer SAP Landscape - Input Questionnaire sheet.
3. Then click **Make Copy**.

Your page should resemble the following:

Copy of GCSAP-C02 [INPUT] Hands-On Lab - Work a Deal - Customer SAP Landscape - Input Questionnaire

File Edit View Insert Format Data Tools Add-ons Help Last edit was seconds ago

SAP on GCP Request Template

	A	B	C
<b>SAP on GCP Request Template</b>			
<b>I. Project Information</b>			
3	Client Name	Sample Customer	
4	Project Name	Move to Google Cloud	
5	Primary Contact Information (Email, Phone)	Taylor Smith	
6	Type of Cloud Migration (Greenfield, OS/DB Migration, Functional Migration)	Lift & Shift + ECC/BW to HANA Migration	
7	Industry	Commercials	
8	Pricing / Costing / Proposal Due Date	ASAP	
9	Expected Project Kickoff Date	Next month	
<b>II. Terms of Contract</b>			
11	Expected environment delivery date	In 4-6 months	
12	Desired length of cloud commitment in months (1 year, 3 year, No Commitment - Pay As You Go)	3 year	
<b>III. Type of Environment</b>			
14	Do you have systems with Oracle DB which need to be hosted?	No	
15	Do you have systems running on Windows for which you plan to bring your own Windows licenses to GCP?	Yes, non-SAP apps	
16	Do you have any HANA OLTP systems > 12 TB? Specify scope and sizing in Existing Landscape Details tab.	No	
17	Do you have any HANA OLAP systems > 2 TB? Specify scope and sizing in Existing Landscape Details tab.	No	
18	Do you have any HANA systems in a scale-out configuration? Specify scope and sizing in Existing Landscape Details tab.	BW could be scale-out or scale-up	
<b>IV. Location of Environment</b>			
20	Preferred primary hosting location (e.g. for running production workloads)	Iowa	
21	Preferred secondary hosting location (e.g. for disaster recovery)	Oregon	
<b>V. HA/DR &amp; Backup Requirements</b>			
23	Do you require true high availability (HA) for your SAP systems (RPO = 0; RTO = ~0)?	Yes, for ECC, BW and some others	
24	If HA is needed, what is the SLA required for production (i.e., 99.99%)	99.9% - 99.99%	
25	Do you require a managed service for orchestrating disaster recovery (DR)?	No	
26	What is your DR recovery time objective (RTO)?	8 hours	

Note that there are 6 tabs in this sheet. The following gives a brief summary of each tab and how it will be used throughout the course of this lab:

- **Questionnaire:** used to collect landscape information from the customer. This tab is already populated with sample customer information.
- **Existing landscape details:** for this exercise we have pre-populated customers existing customer landscape. In real life you will need to gather all this information. This tab describes the system components that belong to sandbox, development, quality assurance, production, and disaster recovery tiers.
- **Target landscape details:** this is where you will be doing the majority of your work. You will analyze ECC and BW system components and cross reference those with sizing reports and map them to appropriate Google Cloud VM shapes, PDs and Cloud Storage.
- **GCP machine type template:** list of different GCP VM offerings with their associated vCPU and memory configurations.
- **ECC on HANA sizing report:** a sample report that provides details on moving from a traditional database to HANA as a database. You will use this as a cross reference to enter in ECC HANA database information into the target landscape details page.

- **BW on HANA sizing report:** a sample report that provides details on moving from a traditional database to HANA as a database. You will use this as a cross reference to enter in BW HANA database information into the target landscape details page.

4. Now open the **Existing Landscape Details** tab. Ensure your page matches the following screenshot:

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Environment	System Component	# Servers	APP	APP Version	Target State APP	Target State APP Version	Existing DB	DB Version	Target DB	Target DB Version	OS	OS Version
32	Production	ECC - DB - HA	1	DB	ECC 6.0 EHP8	ECC 6.0 EHP8	ECC 6.0 EHP8	Oracle	9.x	HANA	2.0	SLES	16
33	Production	ECC - App	4	Application	n/a	n/a	n/a	n/a	n/a	n/a	n/a	SLES	16
34	Production	Fiori - DB	1	DB	Fiori 1.x	Fiori 1.x	Fiori 1.x	n/a	n/a	ASE	16.0 SP3	SLES	16
35	Production	Fiori - App	1	Application	Fiori 1.x	Fiori 1.x	Fiori 1.x	n/a	n/a	n/a	n/a	SLES	16
36	Production	Fiori - WD	1	Application	Fiori 1.x	Fiori 1.x	Fiori 1.x	n/a	n/a	n/a	n/a	SLES	16
37	Production	BW - DB	1	DB	BW 7.0	BW 7.4	BW 7.4	Oracle	9.x	HANA	2.0	SLES	16
38	Production	BW - App	4	Application	BW 7.0	BW 7.4	BW 7.4	n/a	n/a	n/a	n/a	SLES	16
39	Production	BOBI - DB	1	DB	BO 4.0	BO 4.2	BO 4.2	Oracle	9.x	ASE	16.0 SP3	SLES	16
40	Production	BOBI - App	1	Application	BO 4.0	BO 4.2	BO 4.2	n/a	n/a	n/a	n/a	SLES	16
41	Production	HANA-EDW - DB	1	DB	HANA 1.0	HANA 2.0	HANA 2.0	HANA	1.0	HANA	2.0	SLES	16
42	Production	HANA-EDW - DB - HA	1	DB	HANA 1.0	HANA 2.0	HANA 2.0	HANA	1.0	HANA	2.0	SLES	16
43	Production	SolMan - DB	1	DB	SolMan 7.0	SolMan 7.2	SolMan 7.2	Oracle	9.x	HANA	2.0	SLES	16
44	Production	SolMan - ABAP - App	1	Application	SolMan 7.0	SolMan 7.2	SolMan 7.2	n/a	n/a	n/a	n/a	SLES	16
45	Production	SolMan - JAVA - App	1	Application	SolMan 7.0	SolMan 7.2	SolMan 7.2	n/a	n/a	n/a	n/a	SLES	16
46	Production	WebDispatcher - App	1	Application	SolMan 7.0	SolMan 7.2	SolMan 7.2	n/a	n/a	n/a	n/a	SLES	16
47	Production	SLD - DB + App	1	Application	n/a	n/a	n/a	n/a	n/a	n/a	n/a	SLES	16
48	Production	SAP Router - App	1	Application	n/a	n/a	n/a	n/a	n/a	n/a	n/a	SLES	16

In a real world example, an SAP landscape has several components. It has different applications, databases, and tiers. As you can see, in this example the customer's SAP landscape consists of the following tiers:

- Sandbox
- Development
- Quality Assurance
- Production
- Production (Including High Availability)
- Disaster Recovery

And the customer's SAP Landscape consists of the following system components:

- **ECC** (Move to HANA, see sizing report for details)
- Fiori
- **BW** (Move to HANA, see sizing report for details)
- BOBI
- HANA-EDW
- Technical Systems: Solution Manager, SAP Router, SLD

- Other systems: Non-SAP system, WTS (Jump Server)

Take a couple of minutes to familiarize yourself with this landscape. For this exercise we will work on ECC, BW systems. As you can see they are currently running these systems on Oracle and plan to move them to HANA as a database, hence the HANA sizing reports which are provided in separate tabs.

In the following sections you will be asked to map GCP machine types to each system component according to tier limits. You will do this by looking at the application's existing landscape, look at the associated sizing report (for database), and select the appropriate machine type for each instance.

If you have time left, you can go through the same process to enter in target landscape details for the Solution Manager, SAP Router, and SLD systems. However, this is not required.

Now that you have a better understanding of the information made available to you and the task at hand, you will map customer requirements to GCP with ECC on HANA.

## **Task 2. Map customer requirements to GCP with ECC on HANA**

In this section, you will be asked to map the following customer requirements to Google machine types in the target landscape details tab:

- ECC On HANA - DB
- ECC On HANA - App

You will do this for all tiers. These are:

- Sandbox
- Development
- Quality Assurance
- Production
- Disaster Recovery

You should be familiar with this standard SAP HANA sizing report. This is a sample report which may be out of date, so please refer to appropriate sections in real life examples.

To see what the anticipated memory, disk, data models, and clean up details look like:

1. Select the **ECC on HANA sizing report** tab. Your page should match the following screenshot:

MEMORY SIZING CALCULATION DETAILS		HANA SIZE IN GB
Column store data		1.312,7
+ Row store data		38,9
+ Changes in FI tables and columns		7,1
= Anticipated memory requirement for the initial data		1.358,7
+ Cached Hybrid LOB (20%)		214,9
+ Work space		1.358,7
+ Fixed size for code, stack and other services		50,0
= Anticipated initial memory requirement for HANA		2.982,3

  

DISK SIZING CALCULATION DETAILS		HANA SIZE IN GB
Column store data		1.312,7
+ Row store data		38,9
+ Changes in FI tables		7,1
+ hybrid LOBs		1.074,4
+ Space required for merges		374,8
+ Metadata and statistics		25,0
= Initial net data size on disk		2.832,9

  

DATA MODEL CHANGES AND CLEAN UP DETAILS		HANA SIZE IN GB
Anticipated memory requirement for the initial data		1.358,7
- Obsolete financial data (Aggregates, indexes...)		24,5
- Basis Data aged to disk		432,2
= Anticipated memory requirement of data after clean-up		902,1
+ Cached Hybrid LOB (20%)		214,9
+ Cached data from aged partitions (20%)		86,4
+ work space		902,1
+ Fixed size for code, stack and other services		50,0
= Anticipated total requirement for HANA after clean-up		2.155,5

The first block of this report indicates the Anticipated system memory requirement is about 3TB. The second block of steps is used to estimate abs size in upstream systems. This section indicates the anticipated data on disk is around 3TB for as-is.

This 3rd block provides details of sizing requirements post clean-up activities, which is usually the recommendation.

This part of the report indicates the anticipated system memory requirement after clean-up activity, which brings the system memory requirement down to around 2TB. **You will only use the third block of information to calculate ECC - DB requirements and machine types.**

Based on the above information and assuming the following tier ratios:

- Sandbox = Half of the production system size
- Development = One fourth of the production system size
- Quality Assurance = Same size as the production system
- High Availability & Disaster Recovery = Same size as the production system

Your task is to pick an appropriate GCP machine type for ECC on HANA - DB systems. Let's walk through an example. Look at row 3 in the target landscape details sheet. You will need to populate the values in the following columns for the ECC on HANA - DB in the sandbox tier:

- HA
- DR
- GCP Machine Type
- \*GCP Machine vCPU
- \*GCP Machine Memory

*\*these will be automatically generated when you select a machine type from the dropdown menu.*

2. Take a look at the ECC on HANA sizing report tab now. We see that the total requirement of cleanup is ~ 2 terabytes/2,000 gigabytes. If we look back at the tier ratios, we know that the sandbox environment is to use *half of the production size*, which means we will pick the closest machine to a 1 terabyte system.
3. If we open the GCP Machine Type template tab, we see that the machine that's closest in memory to a 1 terabyte is the `m1-ultramem-40` with 961 GB:

66	m1-megamem-96	96	1433	
67	m1-ultramem-40	40	961	
68	m1-ultramem-80	80	1922	
69	m1-ultramem-160	160	3844	
70	m2-ultramem-208	208	5888	
71	m2-ultramem-416	416	11776	

4. We would then go into the target landscape details and select that machine type from the drop down. We can get the HA/DR information from the existing landscape details tab (in this case, both are no).

After following those steps, your third row should match the following:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Number of Instances	SAP System	Database	Tier	Existing Memory (GB)	Existing vCPU(s)	Storage (GB)	HA	DR	OS	Backup Type	GCP Machine	GCP Machine vCPU	GCP Machine Memory	SAP Application version	OS Version
2		Sandbox														
3	1	ECC On HANA - DB	HANA	SBX	256	24	6144	No	No	Linux	Monthly	m1-ultramem-40	40	961	ECC 6.0 EHP8	SLES for SAP
4	1	ECC On HANA - App		SBX	24	6	256			Linux	Monthly				ECC 6.0 EHP8	SLES
5																

Now that you know how to map the ECC on HANA - DB components, let's walk through an example with the application server (row 3, sandbox tier.) Since the application servers move as is, you won't need to reference tier ratios or information found in the sizing report. Instead, you will go to the target landscape details tab, find the closest GCP VM that maps to the existing memory and CPU columns, and enter in that information for the target landscape details.

5. If you look at line 4 of the "Existing landscape details" tab (sandbox ECC - App), you will see the following for existing memory and existing CPU:

A	B	C	D	E	F	G
Number of Instances	SAP System	Database	Tier	Existing Memory (GB)	Existing vCPU(s)	Storage (GB)
	Sandbox					
1	ECC On HANA - DB	HANA	SBX	256	24	6144
1	ECC On HANA - App		SBX	24	6	256

6. If you scroll through the machine types template tab, you will see that the one with the closest amount of vCPUs and Memory is the **n2-standard-8** machine:

10	<b>n2-standard-2</b>	2	8
11	<b>n2-standard-4</b>	4	16
12	<b>n2-standard-8</b>	8	32
13	<b>n2-standard-16</b>	16	64
14	<b>n2-standard-32</b>	32	128
15	<b>n2-standard-48</b>	48	192

7. You would then select that machine from the dropdown and enter it into the target landscape details tab. You would get the HA/DR information for that system component from the existing landscape details tab (in this case, both are no). After entering in that information, row four should look like the following:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Number of Instances	SAP System	Database	Tier	Existing Memory (GB)	Existing vCPU(s)	Storage (GB)	HA	DR	OS	Bac kup	GCP Machine Type	GCP Machine vCPU	GCP Machine Memory	SAP Application version	OS Version
2		Sandbox														
3	1	ECC On HANA - DB	HANA	SBX	256	24	6144	No	No	Linux	Monthly	m1-ultramem-40	40	961	ECC 6.0 EHP8	SLES for SAP
4	1	ECC On HANA - App		SBX	24	6	256	No	No	Linux	Monthly	n2-standard-8	8	32	ECC 6.0 EHP8	SLES
5																

8. Now that you have the sandbox tier filled out, enter in the ECC on HANA - DB and ECC on HANA - APP details for the system components found in the Development, Quality Assurance, Production, and Disaster Recovery tiers.

9. Note that in the production environment for the target landscape details tab there is ECC On HANA - DB - HA. This is a standby node. For this line, you will enter the same machine type information as ECC on HANA DB.

This should take you about 10 minutes to complete. Move on to the following section once you're done.

## **Task 3. Map customer requirements to GCP with BW on HANA**

In this section, you will now enter in target landscape details for the BW for HANA - DB and BW for HANA - App fields. Similar to before, you will have to populate the values for the following columns:

- HA
- DR
- GCP Machine Type
- \*GCP Machine vCPU
- \*GCP Machine Memory

1. For BW - DB, you will be using the BW on HANA sizing report to enter those system components into your target landscape. Open this tab now—your page should match the following screenshot:

	A	B	C	D	E	
2	12/17/2018	Determine DB size relevant for BW /4HANA Sizing				1
3	SOURCE DB CONTENTS					
4	=====					
5	ABAP Size Row Store:	0.4 GB.	No. of tables:	533		
6						
7	ABAP Size Column Store:	1564.1 GB.	No. of tables:	33651		
8	Thereof:					
9	InfoCubes	341.5 GB			188	
10	Std. DSO	539.5 GB			203	
11	Change logs	122.0 GB			97	
12	w/o DSO	191.0 GB			47	
13	PSA	294.0 GB			479	
14	Master Data	14.2 GB			5752	
15	Customer Tables	0.0 GB			3	
16	Others	61.9 GB			26882	
17	TOTAL:			34184		
18						
19	Tables excluded from sizing (aggregates, etc.)			836		
20						
21	MINIMUM MEMORY SIZING RESULTS - CURRENT					
22	=====					
23						
24						
25						
26						
27						
28						
29						
30	SIZING DETAILS					
31	=====					
32	(For 1024 GB nodes)	data [GB]	total [GB]	total [GB]	util.	
33			incl. tmp.	(non-act.)		
34	Row Store	1	2	2		
35	Master Column Store	44	88	88		
	Worker Column Store	244	486	400		
	Caches / Services	50	50	50		

Here's some more information on the first two sections of the report (the third section is irrelevant):

- The first section displays details around the different data types and the size of each of them
  - The second section displays information around scale-up scenarios or scale-out scenarios
2. If you look at the second section that has `MINIMUM MEMORY SIZING RESULTS - CURRENT`, you will see that the minimum physical memory per node is 512 gigabytes (scale out) and the recommend is 1024 gigabytes (scale up).
3. You can deploy BW HANA in either a scale-up or scale-out deployment. If you go with the scale up you would use *one 1.4 terabyte machine* (which is the closest sized SAP HANA OLAP certified Google Cloud VM), whereas if you went with the scale out you would use *three 512 gigabyte machines*. For the purposes of this lab, you will be using the scale out methodology.
4. Take a look at the number of instances column in the target landscape details tab. For the BW On HANA - DB, you will see that the QA, Production, and Disaster recovery have **3** for the column value. Since these tiers do not have resizing ratios, your task is to select a 512 GB GCP machine for them (reference the GCP machine type template tab). Be sure to fill out the HA and DR fields as well.
5. You will see that development instance column for BW for HANA - DB is set to **1**. Development tier is set to half of production, so your task is to select a machine that's closest to half the size of the 1 terabyte database. Be sure to fill out the HA and DR fields as well.

The following provides an overview of the above:

## **Development**

- Single node
- Data is half of production

## **Quality Assurance**

- Three node scale-out
- Data is same size as the production system

## **DR**

- Three node scale-out
- Same size as the production system

## Production

- Three node scale-out + 1 standby node (be sure to fill out the info for the BW for HANA - DB - HA row)
6. Similar to what you did before for ECC - App, for the **BW - App**, you will go to the existing landscape tab, find the closest GCP VM that maps to the existing memory and CPU column, and add that to the target landscape details tab. Be sure to fill out the HA and DR fields as well.

This should take you about 10 minutes to complete. Move on to the following section once you're done.

## Task 4. Check your work

Ensure that you have filled out the target landscape details for ECC - DB, ECC - App, BW - DB, and BW - App for the following tiers:

- Sandbox
- Development
- Quality Assurance
- Production
- Disaster Recovery

To check your work:

1. Open Google Sheets in a new tab and click **Make a copy**.
2. Click on the target landscape details tab.
3. Ensure your page matches the following:

GCSAP-C02 [OUTPUT] Hands-On Lab - Work a Deal - Customer SAP Landscape - Input Questionnaire

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Number of Instances	SAP System	Database	Tier	Existing Memory (GB)	Existing vCPU(s)	Storage (GB)	HA	DR	OS	Backup	GCP Machine Type	GCP Machine vCPU	GCP Machine Memory	SAP Application version	OS Version
6		Development														
7	1	ECC On HANA - DB	HANA	DEV	64	12	3072	No	No	Linux	Weekly	n2-highmem-64	64	512	ECC 6.0 EHP8	SLES for SAP
8	1	ECC On HANA - App	App	DEV	24	6	256	No	No	Linux	Monthly	n2-standard-8	8	32	ECC 6.0 EHP8	SLES
9	1	BW for HANA - DB	HANA	DEV	64	8	256	No	No	Linux	Weekly	n2-highmem-64	64	512	BW 7.5	SLES for SAP
10	1	BW for HANA - App	App	DEV	24	6	256	No	No	Linux	Monthly	n2-standard-8	8	32	BW 7.5	SLES
11	1	Fiori on ASE - DB	ASE	DEV	24	6	409.6	No	No	Linux	Monthly	n2-standard-8	8	32	Fiori 1.x	SLES
12	1	Fiori on ASE - App	App	DEV	24	6	256	No	No	Linux	Monthly	n2-standard-8	8	32	Fiori 1.x	SLES
13	1	Fiori dispatcher	App	DEV	4	2	256	No	No	Linux	Monthly	n2-standard-2	2	8	Fiori 1.x	SLES
14	1	BOBI on ASE - DB	ASE	DEV	24	6	409.6	No	No	Linux	Monthly	n2-standard-8	8	32	BOE 4.2	SLES
15	1	BOBI - App	App	DEV	24	6	256	No	No	Linux	Monthly	n2-standard-8	8	32	BOE 4.2	SLES
16	1	HANA-EDW - DB	HANA	DEV	256	16	1024	No	No	Linux	Weekly	n2-highmem-32	32	256	HANA 1.0 SPS12	SLES for SAP
17	1	SolMan - DB	HANA	DEV	24	6	1024	No	No	Linux	Weekly	n2-highmem-32	32	256	HANA 1.0 SPS12	SLES for SAP
18	1	SolMan - ABAP - App	App	DEV	24	6	256	No	No	Linux	Monthly	n2-standard-8	8	32	SolMan 7.2	SLES
19	1	SolMan - JAVA - App	App	DEV	24	6	256	No	No	Linux	Monthly	n2-standard-8	8	32	SolMan 7.2	SLES
20	1	WebDispatcher - App	App	DEV	4	2	256	No	No	Linux	Monthly	n2-standard-2	2	8	SolMan 7.2	SLES
21	1	WTS - App	WTS	DEV	16	4	256	No	No	Linux	Monthly	n2-standard-4	4	16		Windows 2016
22	1	Non-SAP - DB	DB	DEV	24	6	256	No	No	Linux	Monthly	n2-standard-8	8	32	DB Version, patch	SLES
23	1	Non-SAP - App	App	DEV	14	4	256	No	No	Linux	Monthly	n2-standard-4	4	16	App Version, patch	SLES
24																

4. Compare your target landscape tab with the completed one (for ECC - DB, ECC - App, BW - DB, and BW - App). How did you do? What did you get right? What did you get wrong? Flag any questions or issues you ran into for later discussion.

## Task 5. Enter target landscape details into the pricing tool

Now that you have your target landscape filled out, you will map the ECC and BW details into the pricing tool to get a better sense of how much it costs to run those system components on GCP.

The pricing tool is housed in another Google Sheet. To make your own copy:

1. Open a new tab in your browser. Ensure this is the same window that you logged into with your temporary Qwiklabs Google account.
2. Open Google Sheets to make a copy of the GCSAP-C02 [INPUT] Hands-On Lab - Work a Deal - Solution Sizing and Costing Exercise - Pricing Tool sheet.
3. Then click **Make Copy**.

Your page should resemble the following:

1				
2	<b>Objective:</b> The object of this tool is to help with provide indicative pricing for customers consuming Google Cloud. You can price Compute, Storage, OS and certain network charges. Additionally we have functionality that is helpful for estimating SAP specific components like SAP HANA DB deployment.			
3				
4				
5				
6	<b>Overview of each tab and column in each tab:</b>			
7	<b>Instructions</b>	This sheet		
8	<b>Master Input</b>	In this tab you provide some basic information and things that are applicable across the landscape. This includes Primary / DR region, aggregate PD / GCS, project start / end date (if you want to price over time), Network related details (Egress, Connectivity, Information to share, etc.)		
9	<b>System Details</b>	This is tab to provide application / system specific information. Details such as which VM to be deployed, storage, OS, OnDemand / 1 Yr. CUD / 3 Yr. CUD, etc.		
10	<b>Output</b>	Based on select in the Master details tab, information that you would like to share is refreshed in this tab.		
11	<b>Pricing Summary</b>	Based on all the inputs, the price associated is Compute, Storage, OS, network is available here.		
12				
13				
14	<b>Technical Summary</b>	Based on all the inputs, aggregated information regards the landscape is available here. VM counts by type, System count by tiers / system type / OS, aggregated storage quantities are available here.		
15	<b>Lookup</b>	Prices for various Google Cloud components are stored in this tab. You can also refresh and get the most up-to-date for each of these components.		
16	<b>Mapping Service</b>	This tab has all the necessary mapping and associated logic involved in generating prices for the Lookup tab.		
17	<b>Data Validation</b>	This tab maintains the default values, field names and values for drop down boxes.		
18				

Note that there are 9 tabs in this sheet. The following gives a brief summary of each tab and how it will be used throughout the course of the lab:

- **Instructions:** outlines key objectives, system details tab fields, and includes links to online documentation.
- **Master Input:** provides some basic information on what's applicable across the landscape. This includes Primary/DR regions, aggregate PD/GCS, project start/end date (if you want to price over time), and network related details (egress, connectivity, information to share, etc.) You will need to provide some input in this tab.
- **System Details:** this tab provides application/system specific information. Details such as which VM to be deployed, storage, OS, OnDemand/1 Yr. CUD/3 Yr. CUD, etc.
- **Output:** based on fields/columns selected in the Mater Input tab, information that you would like to share is refreshed in this tab. You will need to provide some input in this tab.
- **Pricing summary:** based on all the inputs, the price aggregated from Compute, Storage, OS, and network is available here. No input is needed here. Based on input in other tabs, prices here will change automatically.
- **Technical summary:** based on all the inputs, aggregated information regarding the landscape is available here. VM counts by type, system count by tiers/system type/OS, aggregated storage quantities are available

here. No input needed in here. Based on input in other tabs, system count and other information is updated automatically.

- **Lookup:** prices for various Google Cloud components are stored in this tab. You can also refresh and get the most up-to-date for each of these components. No input needed here.
- **Mapping service:** this tab has all the necessary mapping and associated logic involved in generating prices for the Lookup tab. No input needed here.
- **Data Validation:** this tab maintains the default values, field names and values for drop down boxes. For this exercise no input is needed here. In real life you can change items in a few columns. Please refer to the appropriate documentation on this.

1. Your first task it to fill out the following sections of the **Master Input** sheet:

	A	B	C	D	E	F	G	H	I
1									
2	Customer Name	Sample Customer Ent.	Primary DC	Iowa					
3	Date prepared		DR DC	Oregon					
4									
5									
6	Priority	Phase description	Performance / Cost Optimized	Billing type default	Backup Frequency default	GCS type default	Start date	End date	
7							6/1/2020	6/1/2023	
8	Priority 1	SBX - ECC on HANA							
9		DEV - ECC+BW on HANA							
10		SBX - ECC on HANA							
11									
12									
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26									
27									

For the first block:

- Enter in today's date for the date prepared field

- Enter in your primary and disaster recovery locations (if you want)

For the second block:

- **Priority cells:** enter in priority numbers 1-5 to map to the 5 different tiers
- **Phase description cells:** ensure each of the tiers for system deployment is mapped to a specific Priority. Eg: Priority 1 maps to Sandbox tier, Priority 2 maps to Development tier
- **Performance/cost optimized cells:** for this exercise let us select 'Cost'. Please look at documentation on Cost vs Performance for further details.
- **Billing type cells:** for the purposes of this exercise we will go with 3 Yr. CUD
- **Backup frequency default:** select an appropriate backup frequency based on what was captured in the target landscape in the Questionnaire
- **GCS type default fields:** for this exercise select Nearline GCS for non-production and Multi-region GCS for production. In real life you would work with the customer to identify their backup needs and map them to appropriate GCS options.
- **Start date/end date:** for this exercise you can leave it blank. You will need these start and end dates if you want to provide customers on what the actual ramp-up costs will look like during the implementation project.

2. Once you're done with that, open the **System details** tab. You should see the following sheet with one row filled out:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1	Priority	System Landscape	System	Database / App	Region	Instances	Instance Type	Custom CPU	Custom Memory	Predefined CPU	Predefined Memory	SPS (Cert.)	Other DB / Apps Storage	PD Storage (GB)	PD Options	Backup String (EB)	GCS Options	Backup Frequency	Backup Frequency days	Total Backup Size (GB)	Billing Option	Number of Hours	CUD	
2	Priority 1	SBX - ECC on HANA	FC1	HANA	Primary	1	n1-highmem-96	96	624 (et O1TP, QAPI)	1,560	SSD PD	468	Multi-Regi	Daily	31	14,508	3 Yr. CUD							
3																#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		
4																#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		
5																								
6																								

3. Your task is to now take the information you entered into the target landscape details and enter it in as new rows to this system details table.

Priority 1 will map to the *sandbox* tier and will contain information on the following system components:

- ECC On HANA - DB
- ECC On HANA - App

Priority 2 will map to the *development* tier and will contain information on the following system components:

- ECC On HANA - DB
- ECC On HANA - App
- BW for HANA - DB
- BW for HANA - App

Priority 3 will map to the *quality assurance* tier and will contain information on the following system components:

- ECC On HANA - DB
- ECC On HANA - App
- BW for HANA - DB
- BW for HANA - App

Priority 4 will map to the *production* tier and will contain information on the following system components:

- ECC On HANA - DB
- ECC On HANA - DB - HA
- ECC On HANA - App
- BW for HANA - DB
- BW for HANA - DB - HA
- BW for HANA - App

Priority 5 will map to the *disaster recovery* tier and will contain information on the following system components:

- ECC On HANA - DB
- ECC On HANA - App
- BW for HANA - DB
- BW for HANA - App

You'll be able to pull most of this information from the target landscape details tab. Here's some more information on column values that you cannot find from that sheet:

- **Database/app:** you will select HANA for database and PAS for application servers
- **Region:** secondary for Disaster Recovery. Primary for all the rest of the tiers
- **PD Options:** for this exercise select PD SSD for all

- **SAPS [Cert.]**: SAPS will be auto populated once the right machine type is selected in the pricing tool
- **PD Storage (GB)**: in the case of HANA as the DB the storage is auto calculated. For application servers you will need to populate it in the white column labeled "Other DB / Apps Storage". In addition to application server, this column is also to provide storage requirements for traditional DB's. Please look at documentation for more details.

**Predefined CPU & Predefined Memory** columns are automatically populated based on selection in column "Instance Type".

This should take you about 15 minutes to complete. Once you're done, go to the pricing summary tab to review your estimated costs.

## Task 6. Check your work

To check your work:

1. Open Google Sheets in a new tab and click **Make a copy**.
2. Click on the system details tab
3. Ensure your page matches the following screenshot:

Copy of GCSAP-C02 [OUTPUT] Hands-On Lab - Work a Deal - Solution Sizing and Costing Exercise - Pricing Tool

Last edit was seconds ago

4. If you scroll to the right side of this tab, you will see cost breakdowns for each of the system components:

OS	Compute Cost (Custom Sizing)	Compute Cost (Predefined Sizing)	PD Cost	GCS Cost	OS Cost	Total Cost
SLES for SAP	\$0.00	\$1,378.48	\$408.43	\$7.21	\$299.30	\$2,093.41
SLES	\$0.00	\$127.62	\$43.52	\$2.56	\$80.30	\$254.00
SLES for SAP	\$0.00	\$1,377.35	\$217.60	\$19.20	\$299.30	\$1,913.45
SLES	\$0.00	\$127.62	\$43.52	\$2.56	\$80.30	\$254.00
SLES for SAP	\$0.00	\$1,377.35	\$217.60	\$19.20	\$299.30	\$1,913.45
SLES	\$0.00	\$127.62	\$43.52	\$2.56	\$80.30	\$254.00
SLES	\$0.00	\$127.62	\$43.52	\$2.56	\$80.30	\$254.00
SLES	\$0.00	\$127.62	\$43.52	\$2.56	\$80.30	\$254.00
SLES	\$0.00	\$31.91	\$43.52	\$2.56	\$80.30	\$158.29
SLES	\$0.00	\$127.62	\$43.52	\$2.56	\$80.30	\$254.00
SLES	\$0.00	\$127.62	\$43.52	\$2.56	\$80.30	\$254.00
SLES for SAP	\$0.00	\$688.68	\$108.80	\$9.60	\$299.30	\$1,106.38
SLES for SAP	\$0.00	\$688.68	\$108.80	\$9.60	\$299.30	\$1,106.38
SLES	\$0.00	\$127.62	\$43.52	\$2.56	\$80.30	\$254.00
SLES	\$0.00	\$127.62	\$43.52	\$2.56	\$80.30	\$254.00
SLES	\$0.00	\$31.91	\$43.52	\$2.56	\$80.30	\$158.29
Windows	\$0.00	\$63.81	\$43.52	\$2.56	\$116.80	\$226.69
MSSQL Enter	\$0.00	\$127.62	\$43.52	\$2.56	\$5,127.52	\$5,301.22
Windows	\$0.00	\$63.81	\$43.52	\$2.56	\$116.80	\$226.69

5. Be sure to open the pricing summary tab too to see what the ECC and BW on HANA aggregate costs looks like:

fx |

	A	B	C	D	E	F	G	H	I	J	K
1											
2											
3											
4											
5											
6											
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11											
12											
13											
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15											
16											
17											
18											
19											
20											
21											
22											
23	Total	\$43,832	\$10,902	\$2,942	\$27,442	\$85,118	85				
24											

6. Compare your system details tab with the completed one (for ECC - DB, ECC - App, BW - DB, and BW - App). How did you do? What did you get right? What did you get wrong? Flag any questions or issues you ran into for later discussion.

## Congratulations!

In this 60 minute lab, you learned how to map customer's SAP infrastructure requirements to Google Cloud services. You then learned how to use the SAP Pricing Tool to price multiple SAP landscape tiers and applications.

End your lab