

1. Reason:

I selected 'course_name' as the partition key, and 'course_id' as sort key. Every course in USC is unique with a course name and id. For example, this course data management is identified as DSCI551.

Using the course name as the partition key allows for efficient retrieval of all information related to a specific course, as all data for a given course will be stored in the same partition.

The sort key allows you to differentiate between multiple courses with the same name, as the combination of course_name and course_id will be unique for each course.

2.

Attribute name	Value	Type
course_name - Partition key	Data Management	String
course_id - Sort key	DSCI551	String
Capacity	150	Number
Homework	Insert a field	String set
0	AWS and Firebase	String
1	External Sorting	String
2	SQL and ER	String
3	Spark and Hadoop	String
4	XML	String
Lecturer	Prof. Wensheng Wu	String

TAs		Insert a field ▼	List
0	Amy		String
1	Barbara		String
2	Chris		String

Timetable		Insert a field ▼	Map
Web. 18:30-20:20	LVL		String
Wed. 17:00-18:20	SGM		String

3. .

Course name and course id are strings. Strings are identified as “S”, so they are shown as:

```

1 ▼ {
2   "course_name": {
3     "S": "Data Management"
4   },
5   "course_id": {
6     "S": "DSCI551"
7   },

```

Capacity is a number. Number is identified as “N”:

```

8 ▼ "Capacity": {
9   "N": "150"
10  },

```

Homework is an attribute of String set, which contains different homework topics:

```

11 ▼ "Homework": {
12   "SS": [
13     "AWS and Firebase",
14     "External Sorting",
15     "SQL and ER",
16     "Spark and Hadoop",
17     "XML"
18   ]
19 },

```

```

20 ▼ "Lecturer": {
21   "S": "Prof. Wensheng Wu"
22 },

```

Lecturer is a String:

TAs is a *list* of Strings:

```
23 ▼ "TAs": {  
24 ▼   "L": [  
25 ▼     {  
26       "S": "Amy"  
27     },  
28 ▼     {  
29       "S": "Barbara"  
30     },  
31 ▼     {  
32       "S": "Chris"  
33     }  
34   ]  
35 },
```


Timetable is a map, identifying as 'M'.

```
36 ▼ "Timetable": {  
37 ▼   "M": {  
38 ▼     "Web. 18:30-20:20": {  
39       "S": "LVL"  
40     },  
41 ▼     "Wed. 17:00-18:20": {  
42       "S": "SGM"  
43     }  
44   }  
45 }
```

4.

Scan:

Courses

 Autopreview

View table details

▼ Scan or query items

☒ Scan

☐ Query

Select a table or index

Table - Courses ▼

Select attribute projection

All attributes ▼

► Filters

Run

Reset

✓ Completed. Read capacity units consumed: 0.5

×

Items returned (2)

↻

Actions ▼

Create item

<

1


>

⚙

✖

<input type="checkbox"/>	course_name (String) ▼	course_id (String) ▼	Capacity ▼	Homework ▼
<input type="checkbox"/>	Data Management	DSCI551	150	{"AWS and ...
<input type="checkbox"/>	Machine Learning for Data...	DSCI552		

Courses

 Autopreview

[View table details](#)

▼ Scan or query items

☒ Scan

☐ Query

Select a table or index

Table - Courses ▼

Select attribute projection

Specific attributes ▼

Specific attributes to project

 Enter attribute name

Add attribute

Capacity ✕

► Filters

Run

Reset

✓ Completed. Read capacity units consumed: 0.5

✕

Items returned (1)



Actions ▼

Create item

< 1 >  

☐ Capacity ▼

☐ 150

Query:

▼ Scan or query items

☐ Scan

☒ Query

Select a table or index

Table - Courses ▼

Select attribute projection

All attributes ▼

course_name (Partition key)

Data Management

course_id (Sort key)

Begins with ▼

DSCI

☐ Sort descending

► Filters

Run

Reset

✓ Completed. Read capacity units consumed: 0.5

✕

Items returned (1)

↺

Actions ▼

Create item

<

1

>

⚙

🗖

<input type="checkbox"/>	course_name (String) ▼	course_id (String) ▼	Capacity ▼	Homework ▼
<input type="checkbox"/>	Data Management	DSCI551	150	{"AWS and ...