
Quiz 1 - DSC 10, Winter 2026

Full Name:

PID:

Quiz Time: ☐ 1PM ☐ 2PM

Instructions:

- This quiz consists of 5 questions. You have a total of 30 minutes to complete it.
 - Please write **clearly** in the provided answer boxes; we will not grade work that appears elsewhere. Completely fill in bubbles and square boxes; if we cannot tell which option(s) you selected, you may lose points.
 - ☐ A bubble means that you should only **select one choice**.
 - ☐ A square box means you should **select all that apply**.
 - If your answer is a string, make sure to put it in quotes. If your answer is a float, make sure to include a decimal point.
 - You may use one handwritten sheet of notes. No calculators and no computers.
 - Assume we have already run `import babypandas as bpd` and `import numpy as np`.
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By signing below, you are agreeing that you will behave honestly and fairly during and after this quiz.

Signature:

Version A

Please do not open your quiz until instructed to do so.

You are working as a student assistant in the UCSD Registrar's Office, and your job is to analyze enrollment data to understand student preferences and improve course scheduling.

The `courses` DataFrame (first few rows are shown below) contains information about courses offered this quarter. Each row represents a unique course offering. For each course, you have the "Course" code (string), "Department" (string), "Professor" name (string), "Enrollment" (int), "Capacity" (int), "Units" (int), and whether the course is "Online" (bool).

	Course	Department	Professor	Enrollment	Capacity	Units	Online
0	DSC 10	DSC	Chi	450	500	4	False
1	DSC 20	DSC	Lau	380	400	4	False
2	CSE 12	CSE	Cao	350	400	4	False
3	MATH 20C	MATH	Smith	420	450	4	False
4	COGS 9	COGS	Voytek	280	300	4	True

Question 1

Your supervisor asks you to create a welcome message for new students. The code below generates this message and stores it in the variable `message`. In the box, write in the value of the `message` variable after the code executes. Write clearly!

```
school = "ucsd"
year = "2026"
message = "hello"
message = school.upper() + " " + year
message = message.replace("SD", " San Diego")
```

message:

Question 2

For each expression below, write the **output** that Python produces, or write **error** if the expression produces an error.

a) `str(courses.take(np.arange(4)).shape[0]) * 2`

b) `courses.get("Enrollment").iloc[0] != courses.get("Enrollment").loc[0]`

c) `courses.shape[1] / 7`

Question 3

The Registrar wants to calculate what percentage of each course's capacity is currently filled. Fill in the blanks to add a new column called "Percent_Full" to the `courses` DataFrame that contains this percentage (as a number between 0 and 100).

```
courses = courses.assign(Percent_Full = __ (a) __ / __ (b) __ * 100)
```

(a):

(b):

Question 4

With more students requesting online courses, the Registrar wants to know how many online courses are offered by the CSE department. **Select all** expressions that correctly evaluate to an `int` that is the total number of online CSE courses in `courses`.

- ☐ `courses[(courses.get("Department") == "CSE") & (courses.get("Online"))]`
- ☐ `(courses.get(["Department", "Online"]).groupby("Department").sum().get("Online").loc["CSE"])`
- ☐ `((courses.get("Department") == "CSE") & (courses.get("Online"))).shape[0]`
- ☐ `((courses.get("Department") == "CSE") & (courses.get("Online"))).sum()`
- ☐ None of the above.

Question 5

For a report to the Academic Senate, you need to analyze course enrollment patterns. Write or finish **one line of Python code** that produces each quantity described.

- a) A DataFrame consisting of "Department" as the index, and a **single column** containing the **mean** "Enrollment" of all courses within each "Department".

`courses.get(["Department", "Enrollment"]).`

- b) A scatter plot of the data in the `courses` DataFrame with "Capacity" on the x-axis and "Enrollment" on the y-axis.

Reminders:

- **Write your PID** on the front page and on the top right corner of page 3.
- If your answer is a string, make sure to put it in **quotes**.
- If your answer is a float, make sure to include a **decimal point**.
- Stay in your seat until the quiz is over. No leaving early.