Midterm 2

⚠ This is a preview of the published version of the quiz

Started: Sep 20 at 8:52pm

Quiz Instructions

Midterm 2

Date & Time:

- Regular: 7PM - 8:05PM, Friday, July 21st.
- Conflict: 10:30AM - 11:35AM, Friday, July 21st.

Exam Format:

- 50 minutes for the exam + 15 minutes for starting Honorlock
- 20 multiple choice questions
- Topics covered: Web 1: Selenium to Visualization 3
- Here's a list of learning objectives corresponding to each topic: **https://github.com/yiyins2/CS320-SU23-lecture-notes/blob/main/exams/learning%20objectives.pdf (https://github.com/yiyins2/CS320-SU23-lecture-notes/blob/main/exams/learning%20objectives.pdf)**
- **(https://github.com/yiyins2/CS320-SU23-lecture-notes/blob/main/exams/learning%20objectives.pdf)** The questions will focus more on lectures and quizzes, and less on labs and projects
- Here're some past exams, and the midterm will be in a similar style: **https://github.com/yiyins2/CS320-SU23-lecture-notes/tree/main/exams (https://github.com/yiyins2/CS320-SU23-lecture-notes/tree/main/exams)**
- Feel free to post questions about past exams on Piazza with the semester number and question number as the title

How to take the exam?

- Five minutes before the exam, I will send you the access code through email
- You can find the exam under Canvas - Quizzes
- Here's an online tutorial going through the details on how to use Honorlock: **https://honorlock.com/wp-content/uploads/2019/09/Canvas_Student_Guide_Accessible.pdf (https://honorlock.com/wp-content/uploads/2019/09/Canvas_Student_Guide_Accessible.pdf)**
- You need to scan your Photo ID (e.g., Student ID)
- You can bring one double-sided page of notes (8.5x11). Feel free to collaborate with other students on creating your note sheet.
- You can also bring any number of empty scratch papers
- No other computers/smart devices other than the one you are using to take the exam are allowed

- As you cannot ask for clarifications during the exam, please answer all questions to the best of your knowledge. You can email me about questions on the exam after the fact.

Cheating

- Please DO NOT discuss about exam questions or post about them on Piazza before Thursday, July 25th, as I have conflict exams scheduled before then.

Illness

- If you are sick and cannot take this exam, please email me immediately
- I'll expect medical documents (doctor's note, test result, etc) within 1 week after the exam
- I'll weigh this exam using the other two exams (the grade of this exam will be the average of the other two exams)

Question 1 — 1 pts

Given that `driver` is a Selenium WebDriver, which of the following enables us to find all the link elements within a webpage?

- ◯ driver.find_elements("tag name", "href")
- ◯ driver.find_elements("id", "href")
- ◯ driver.find_elements("id", "a")
- ◯ driver.find_elements("tag name", "a")

Question 2 — 1 pts

The alt attribute for the <img> tag specifies an alternate text for an image, if the image cannot be displayed for some reason. Underneath is an example of an <img> tag with the alt attribute:

```
<img src="img_alt.png" alt="an example of an img tag with alt attribute" />
```

Assume `element` is a Selenium WebElement found by tag name of img. Which of the following enables us to access the alt attribute of `element`?

- ◯ element.get_attribute("alt")
- ◯ element.alt
- ◯ element.attributes["alt"]
- ◯ element.attributes.get("alt")

Question 3

1 pts

Which of the following data structures best represents the Document Object Model (DOM)?

- ◯ weakly connected graph
- ◯ tree
- ◯ directed acyclic graph
- ◯ binary tree

Question 4

1 pts

Which of the following is a correct query string for route `data` that produces `dict(flask.request.args) = {"limit": "10", "page": "2", "sort": "desc"}`

- ◯ IP:5000/data?limit=10&page=2&sort=desc
- ◯ IP:5000/data?limit=10,page=2,sort=desc
- ◯ IP:5000/data&limit=10,page=2,sort=desc
- ◯ IP:5000?limit=10&page=2&sort=desc

Question 5

1 pts

If a flask app has the following routes, what does the app print when a user visits `awesome.html` of the site?

```
@app.route("/")
def root():
    print("X")
    return "TODO"

@app.route("/plot.png")
def image():
    print("Y")
    return "TODO"

@app.route("/awesome.html")
def awesome():
    print("Z")
    return '<html><body><img src="plot.png"></body></html>'
```

- ◯ X, Z, and Y
- ◯ X and Z
- ◯ Z only
- ◯ Z and Y

Question 6

1 pts

Which of the following image format should I use for a plot so that I can display it at high-resolution on an arbitrarily large screen?

- ◯ SVG
- ◯ PNG

Question 7

1 pts

Which of the following will result in a smaller p-value for an A/B testing?

- ◯ Having a smaller skew between version A and B
- ◯ Having a smaller sample size
- ◯ Having a larger threshold for significance
- ◯ Having a larger sample size

Question 8

1 pts

The underneath code snippet defines the "upload" route.

```
@app.route("/upload", methods=["POST"])
def upload():
    # some code here
```

Which of the following status code will the browser respond if we send the underneath curl request?

```
curl http://IP:5000/upload
```

- ◯ 404
- ◯ 200
- ◯ 405
- ◯ 429
- ◯ 500

Question 9

1 pts

What's the click-through rate of version A?

	click	no-click
Version A	30	60
Version B	25	75

- ◯ 1/2
- ◯ 3/4
- ◯ 1/3
- ◯ 2/3

Question 10

1 pts

Where should we specify the "Retry-After" value for a specific route?

- ◯ status code
- ◯ query string
- ◯ request header
- ◯ response header

Question 11

1 pts

```
import re
matches = re.findall("AB+?B", "ABBBBBB")
```

Given the above code snippet, what will be `matches[0]`?

- ◯ AB
- ◯ ABBBBBB
- ◯ ABB

- A

Question 12

1 pts

What will be returned by `re.sub("(\d+)-(\d+)-(\d+)", "\g<2>/\g<1>", "Fri, 7-21-2023")`?

- "21/7"
- "Fri, 7/21"
- "Fri, 21/7"
- "7/21"

Question 13

1 pts

Which of the following is equivalent to `"\\\\t"`?

- `r"    "`
- `r"\\\\\\\\t"`
- `r"\t"`
- `r"\\t"`

Question 14

1 pts

```
import re
msg = "Foundational Data Science courses are STAT 240, STAT 340, CS 220, CS320, a
nd LIS 461."
matches = re.findall("([A-Z]+)\s(\d{3})", msg)
```

Given the above code snippet, what will be `len(matches[-1])`?

- ○ 1
- ○ 4
- ○ 2
- ○ 3

Question 15

1 pts

Which of the following strings will match the regular expression below?

```
r"^[A-Z]+\s*\D{3}$"
```

- ○ `"c fie"`
- ○ `"eft  863"`
- ○ `"QAtup"`
- ○ `"DPSN    014"`

Question 16

1 pts

Your figure has only one subplot. The xlim and ylim of the subplot are (0, 0.8) and (0, 1), respectively. You are drawing a circle that is located at (0.4, 0.5) and has radius of 0.3.

```
fig, (ax,) = plt.subplots()
ax.set_xlim(0, 0.8)
ax.set_ylim(0, 1)
plt.Circle((0.4, 0.5), 0.3, transform=transformer)
```

Which of the following `transformer` will give your circle the largest area?

- ○ `None`

- `fig.transFigure`
- `ax.transAxes`
- `ax.transData`

Question 17

1 pts

Given that `square` is a `shapely.geometry.polygon.Polygon` object and `pt` is a `shapely.geometry.point.Point` object, which of the following will return True if `square` is within 5 units away from `pt`, False otherwise?

- pt.intersection(square.buffer(5))
- square.intersects(pt.buffer(5))
- square.intersection(pt.buffer(5))
- square.difference(pt.buffer(5))

Question 18

1 pts

What is the best way to best describe the relationship between Series (of the pandas module) and GeoSeries (of the geopandas module)?

- A Series can do everything a GeoSeries can do, and more
- A GeoSeries can do everything a Series can do, and more
- While both data types have much in common, they both have some features that the other lacks

Question 19

1 pts

Which of the following allow us to convert street address to lat/long?

- ◯ to_crs
- ◯ geocoding
- ◯ box
- ◯ transform

Question 20

1 pts

I'm using geopandas lat/long as the coordinate reference system to calculate the areas for all countries in the world. Which of the following countries will have the most accurate area calculation?

- ◯ a large country near the equator
- ◯ a small country near the equator
- ◯ a small country near the north pole
- ◯ a large country near the north pole