# <u>#</u> Exam 2 Version Y

Question 1

[1 points] Assume element is a Selenium WebElement given by <a href="link.html" target="\_blank">page<\a>. Which of the following returns "link.html"?

l	element.href
	element.text
	<pre>element.get_attribute("href")</pre>
	<pre>element.get_attribute("text")</pre>

Question 2

[1 points] Suppose element is an HTML table WebElement with 3 rows and 3 columns, which of the following code finds the text in the last cell of the first row in the table?

ment.find_elements("tag name", "tr")[2].find_elements("tag name", "td")[2].t	:ext
ment.find_element("tag name", "tr").find_element("tag name", "td").text	
<pre>ment.find_element("tag name", "tr").find_elements("tag name", "td")[2].text</pre>	
<pre>ment.find_elements("tag name", "tr")[2].find_element("tag name", "td").text</pre>	

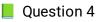
≡



[1 points] Suppose the following nodes are in the priority queue, {node: "A", g: 1, h: 10}, {node: "B", g: 3, h: 7}, {node: "C", g: 5, h: 3}, {node: "D", g: 7, h: 2}, where "g" represents the distance from the initial node and "h" represents an admissible heuristic (estimated distance to the goal node). Which node will best first greedy search check next?

 $\equiv$ 





[1 points] There are infinite number of web pages labeled by (0, 0), (0, 1), (0, 2), ..., (1, 0), (1, 1), ... and page (i, j) contains links to pages (i + 1, j) and (i, j + 1). Suppose we start at page (0, 0) and the goal is to find page (10, 10), which one of the following search heuristic is NOT admissible?

h((i, j)) = |10 - i| + |10 - j|
h((i, j)) = 1
h((i, j)) = min(|10 - i|, |10 - j|)
h((i, j)) = 0

```
C 🛪
```

[1 points] Which of the following is a correct query string for route data that produces dict(flask.request.args) = {"from": "B", "to": "A"}

```
] IP:5000/data?from=B,to=A
```

IP:5000/data?from=B&to=A

IP:5000/data?from="B",to="A"

IP:5000/data?from="B"&to="A"

```
Question 6[1 points] What URL should be visited to get the page that displays "bbb"?
```

```
@app.route("/aaa")
def aaa():
   return "bbb"
@app.route("/")
```

```
def bbb():
    return "aaa"
```

```
http://127.0.0.1:5000/
```

http://127.0.0.1:5000/bbb

http://127.0.0.1:5000/aaa

http://127.0.0.1:5000/index

 $\equiv$ 

[1 points] Which of the following types of visitor information can be found based on flask.request.remote\_addr?

Browser information

Device information

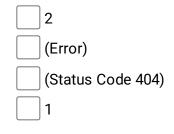
Location information

Operating system



[1 points] In a Flask app, app.route("/index/<x>") binds the function index(x) return x. What will visits to "/index/1?x=2" display?

 $\equiv$ 





#### Question 9

[1 points] Suppose the total number of visits to version A and version B pages are fixed, say at 100 and 100. Which of the following will result in the smallest p-value for an A/B test?

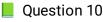
 $\equiv$ 

25 clicks on A, 75 clicks on B

0 clicks on A, 50 clicks on B

50 clicks on A, 50 clicks on B

100 clicks on A, 0 clicks on B



[1 points] When analyzing three contingency tables from an A/B test, scipy.stats.fisher\_exact(df) returns 0.002 for table 1, 0.02 for table 2, and 0.2 for table 3. At a threshold for significance of 10 percent, for how many tests do we have statistically significant evidence that B has a different click-through-rate than A?

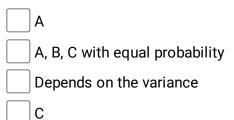




## 📕 Question 11

[1 points] If the current average click through rates from versions A, B, C of the page are the same, and the numbers of visits to A, B, C are 30, 20, 10, respectively, which version with the UCB1 (upper confidence bound) algorithm display next?

 $\equiv$ 





[1 points] How many of the following visual encodings are more suitable for categorical data columns over ordinal data columns: (1) size, (2) shape (style), (3) color value (lightness or brightness), (4) color hue, (5) texture (different patterns inside a shape).



C 🔺

Question 13

[1 points] In a DataFrame with columns c1, c2, c3, c4 containing categorical data with 5, 4, 3, 2 categories respectively, how many subplots (axes) will seaborn.relplot(data, x = "c1", y = "c2", col= "c3", row = "c4") make?

 $\equiv$ 

1
6
12
20

Question 14

[1 points] Which of the following transform will give you the circle that looks the smallest on the screen?

```
fig, ax = plt.subplots()
ax.set_xlim(0, 2)
ax.set_ylim(0, 2)
circle = plt.Circle((0.5, 0.5), 0.5, transform = ??)
??.add_artist(circle)

fig.transFigure
(two of the choices have the same smallest size)
ax.transAxes
ax.transData
```



[1 points] If the quadratic Bezeir curve matplotlib.patches.FancyArrowPatch((10, 10), (0, 0), connectionstyle=ConnectionStyle.Angle3(-45, 0) has three control points (10, 10), (a, b), (0, 0), what is the value of (a, b)?

 $\equiv$ 

- (0, 10)
- (20, 0)
- (0, 20)
- (10, 0)
- 📕 Question 16

[1 points] Which of the following does NOT produce a square if x = shapely.geometry.box(0, 0, 0)

4, 4), y = shapely.geometry.box(1, 1, 3, 3)?

x.intersection(y)

(All other choices produce a square)

- \_\_\_\_\_x.union(y)
  - x.convex\_hull

$\mathbf{\alpha}$	

Question 17			
[1 points] If x = shapely.box(0, 0, 1, 1) and y = shapely.box(a, b, c, d) for some a < c, b			
< d, z = x.union(y), what is the minimum number of vertices the polygon z will have?			
8			
4			
1			
6			

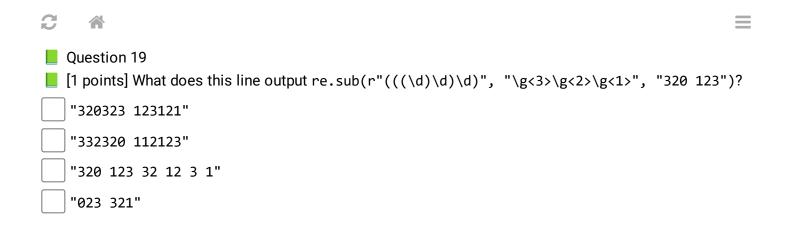
 $\equiv$ 

Question 18

[1 points] What will be len(matches) given the code below? (Note there is no space between CS and 320)

courses = "CS320, CS 368, CS 540, CS 559"
matches = re.findall("([A-Z]+)\s(\d{3})", courses)





[1 points] If you think any of the questions are not clear or incorrect, please explain here; otherwise, enter "none". Please do not leave the answer blank:



# END OF EXAM

Last Updated: November 10, 2023 at 7:59 PM

 $\equiv$ 



UNIVERSITY OF WISCONSIN-MADISON

Powered by w3.css