Programming Questions

# Python Regex Questions

Q1. Write a Python regex to match a string that starts with 'a' and ends with 'z', with any number of characters in between.

import re

pattern = r'^a.\*z$'

fruits = ['apple and orange', 'alphabet soup', 'amazing maze', 'abcxyz']

for fruit in fruits:

if re.match(pattern, fruit):

print(f"{fruit} matches the pattern.")

**Output:**

abcxyz matches the pattern.

Q2. How can you use a regex in Python to find all words in a string that start with 'b' and end with 'e'?

import re

pattern = r'\b[bB]\w\*e\b'

test\_string = "The bee buzzed by the Blue sea."

words\_found = re.findall(pattern, test\_string, flags=re.IGNORECASE)

print(words\_found)

**Output:**

['bee', 'Blue']

Q3. Write a Python regex to validate an email address. An email is considered valid if it starts with characters (a-z, A-Z) or digits, followed by a '@', then domain name part with characters or dots, and ends with a domain suffix of 2 or 3 characters.

import re

email\_pattern = r'^[a-zA-Z0-9]+@[a-zA-Z0-9]+\.[a-zA-Z]{2,3}$'

email = "example@email.com"

if re.match(email\_pattern, email):

print("Valid email address")

else:

print("Invalid email address")

**Output:**

Valid email address

Q4. How can you split a string into sentences using Python regex, considering sentences end with a period, exclamation mark, or question mark?

import re

text = "Hello! How are you? I am fine."

sentences = re.split(r'[.!?]', text)

sentences = [sentence.strip() for sentence in sentences if sentence.strip()]

print(sentences)

**Output:** ['Hello', 'How are you', 'I am fine']

# SQL Trigger Questions

Q1. Write an SQL trigger that automatically updates the column `last\_updated` to the current date and time in a table `employees` whenever a row is updated.

CREATE TRIGGER update\_last\_updated

BEFORE UPDATE ON employees

FOR EACH ROW

BEGIN

SET NEW.last\_updated = NOW();

END;

Q2. How can you create a trigger in SQL that prevents deletions from the `orders` table if the order date is older than 1 year?

CREATE TRIGGER prevent\_order\_deletion

BEFORE DELETE ON orders

FOR EACH ROW

BEGIN

IF OLD.order\_date < DATE\_SUB(NOW(), INTERVAL 1 YEAR) THEN

SIGNAL SQLSTATE '45000'

SET MESSAGE\_TEXT = 'Cannot delete orders older than 1 year';

END IF;

END;

Q3. Create an SQL trigger that inserts a record into a `log\_table` (columns: `action\_type`, `action\_timestamp`, `employee\_id`) whenever a row is inserted into the `employees` table, capturing the type of action ('INSERT'), the timestamp of the action, and the inserted employee's ID.

CREATE TRIGGER insert\_employee\_log

AFTER INSERT ON employees

FOR EACH ROW

BEGIN

INSERT INTO log\_table (action\_type, action\_timestamp, employee\_id)

VALUES ('INSERT', NOW(), NEW.employee\_id);

END;