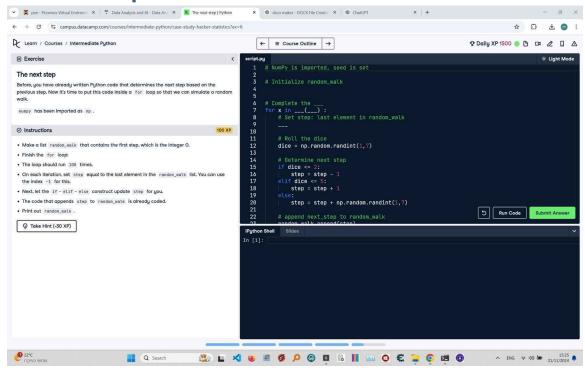
The Next Step



Below is the exercise on 'The Next Step' from the Python course. The image includes the instructions, code, and task details.

Solution:

```
# NumPy is imported, seed is set
import numpy as np
np.random.seed(123)

# Initialize random_walk
random_walk = [0]

# Complete the for loop
for x in range(100): # Loop runs 100 times
    # Set step: last element in random_walk
    step = random_walk[-1]

# Roll the dice
dice = np.random.randint(1, 7)

# Determine next step
```

```
if dice <= 2:
    step = step - 1 # Move down
elif dice <= 5:
    step = step + 1 # Move up
else:
    step = step + np.random.randint(1, 7) # Move up by a random value

# Append next_step to random_walk
random_walk.append(step)

# Print out random_walk
print(random_walk)</pre>
```

Explanation:

- 1. Import numpy as np and set the random seed using np.random.seed(123) to ensure reproducibility.
- 2. Initialize random walk as a list containing the first step, 0.
- 3. Use a for loop that runs 100 times to simulate the steps of the random walk:
- Get the current step as the last element of the random_walk list using random walk[-1].
- Roll the dice using np.random.randint(1, 7) to generate a random integer between 1 and 6.
- Use an if-elif-else construct to determine the next step based on the dice roll:
 - If dice is 1 or 2, decrease step by 1.
 - If dice is 3, 4, or 5, increase step by 1.
 - If dice is 6, roll the dice again and add the new result to step.
- 4. Append the updated step to the random walk list.
- 5. Print the final random walk list after completing the loop.