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Unit Plan: Introduction to Python
Topic of the Lesson: Summative Assessment / Building a Quiz App
Grade and Content: 10th - 12th / Computer Science
Timing/Pace: 1 class period

Learning Objective:
Students will be able to demonstrate mastery of the previous lessons by building an advanced version of the quiz app as well as challenges.

NYS Standards:

9-12.CT.2 Collect and evaluate data from multiple sources for use in a computational artifact.

9-12.CT.5 Modify a function or procedure in a program to perform its computation in a different way over the same inputs, while preserving the result of the overall program.

9-12.CT.8 Develop a program that effectively uses control structures in order to create a computer program for practical intent, personal expression, or to address a societal issue.

9-12.CT.9 Systematically test and refine programs using a range of test cases, based on anticipating common errors and user behavior

Lesson Abstract:

Students have been learning how to program in Python using variables, conditionals, expressions and loops, the building of quiz apps will demonstrate student mastery of the concepts/skills presented in lessons 1-6.

Content-specific vocabulary/ concepts:

- variables
- conditionals
- lists
- loops
- boolean expressions
- casting
- user input
- sequencing
- concatenation
- print statements

Materials/Resources:

- Internet connection
- laptops
- Replit
- Nearpod
- smart board

Formative Assessments:

- journal/ programming log
- Nearpod collaborative board and polls

Summative Assessment:

Quiz App program

- quiz_app_basic
- quiz_app_intermediate
- quiz_app_advanced
- quiz_app_challenge

Warm-up/ Mini lesson:

Students will post questions to the Nearpod Collaborative Board regarding difficulties encountered in the completion of the intermediate quiz app.

Activity / Sequence of Lesson:

Teacher will lead the class discussion regarding posts to the collaborative board. After class discussion, students will be asked to open their Repls and create a Python file called quiz_app_advanced.

Students will be instructed to complete a **advanced quiz app and quiz app challenge** with the following guidelines:

- In Replit, create a new file called quiz_app_advanced.py
- You may copy and paste the previous quiz app into this version
- Create a variable to keep track of the user's attempts
- Give the user 2-3 attempts at answering the question
- After the second or third attempt, inform the user of the correct answer
- The program should report the score after all the questions have been answered

Challenge 1: If students have successfully completed all three versions of the quiz app, students will complete the following challenges by adding functionality to their program with the following guidelines:

- Use the advanced quiz app to add functionality, no need for a new file
- Amend your question and answer data structure by either adding a list as a third element to each sublist or amend the second item of each sublist by inserting a list of "acceptable responses"
- If the user responds to the current question with any of the items in the answer list, the program should recognize it as a correct response
- Maintain the functionality of the intermediate and advance quiz apps by reporting the correct answer if the user gets it wrong after 2-3 attempts

Challenge 2: If students have successfully completed all three versions of the quiz app and the 1st challenge, students will directed to complete the 2nd challenge with the following guidelines:

- Continue to use the advanced quiz app to add functionality, no need for a new file
- Develop your own functionality to the quiz, no guidelines for what you may do. This challenge is so that you can be creative and decide what you would like to add. For example, you could develop code that gave the user a hint after an incorrect response.

Summary / Next Steps / Exit Slip:

- Students will submit quiz_app_basic and the teacher will use the rubric checklist to either give or not give an entrance/exit ticket to the next version of the quiz app. Students will have to receive checks for all 9 rubric categories to move onto the next quiz app.
- Students who complete all 3 quiz apps will be given challenges to further improve the quiz app.
- The goal is for students to complete as many, if not all of the quiz apps and challenges.

Quiz App Scoring and Rubric Checklist

No submission = 0

Approaching Quiz App (not complete) = 40-60

Quiz App Basic = 65 - 75

Quiz App Intermediate = 75 - 85

Quiz App Advanced = 85 - 95

Quiz App Challenge = 100

Students will receive checks for each skill category satisfactorily demonstrated

RUBRIC CHECKLIST	**Quiz Apps >>>>>**	**BASIC**	**INTERMEDIATE**	**ADVANCED**	**CHALLENGES 1-2**
variables	● Student is able to create and implement variables in the program				
functions	● Student is able to create and define a function				
conditionals	● Student is able to create an if /if else statement with proper syntax, indentation and case to be tested using operators and/or boolean expressions				
loops	● Student is able to create a for/ while loop with proper syntax, indentation and for while loop - a proper exit condition				

lists	● Student is able to make a list and fill it with values such as another list(sublist) for this program to function as intended.				
concatenation	● Student is able to demonstrate concatenation by casting variables and using +				
user input	● Student is able to take input from the user and implement it properly in the program for it to function as intended.				
sequencing	● Student is able to sequence the program in a way that allows the program to function as intended.				
print statements	● Student is able to execute print statements for the program to function as intended.				