

START MathsTest Program

CLASS MathsTest

METHOD \_\_init\_\_

SET var\_score TO 0

SET var\_results TO empty list

SET var\_correct\_count TO 0

SET var\_questions TO 0

SET var\_max\_num TO 0

END METHOD

METHOD choose\_difficulty

LOOP forever

DISPLAY "Select a difficulty:"

DISPLAY "1) Easy 2) Medium 3) Hard"

INPUT choice

CONVERT choice TO lowercase

IF choice is "1" OR "easy" OR "e" THEN

SET var\_questions TO 5

SET var\_max\_num TO 10

DISPLAY "Easy mode selected!"

BREAK LOOP

ELSE IF choice is "2" OR "medium" OR "m" THEN

SET var\_questions TO 10

SET var\_max\_num TO 20

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        DISPLAY "Medium mode selected!"

        BREAK LOOP

    ELSE IF choice is "3" OR "hard" OR "h" THEN

        SET var_questions TO 15

        SET var_max_num TO 50

        DISPLAY "Hard mode selected!"

        BREAK LOOP

    ELSE

        DISPLAY "Invalid choice! Enter 1, 2 or 3."

    END IF

END LOOP

END METHOD

METHOD create_question(min_num, max_num)

    GENERATE random num1 BETWEEN min_num AND max_num

    GENERATE random num2 BETWEEN min_num AND max_num

    RANDOMLY CHOOSE operator FROM ['+', '-']

    IF operator IS '-' AND num1 < num2 THEN

        SWAP num1 AND num2

    END IF

    RETURN STRING "{num1}{operator}{num2}"

END METHOD

METHOD ask_question(question)

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RECORD start time

INPUT answer FROM user ("What is {question}?")

RECORD end time

CALCULATE time\_taken AS integer of (end - start)

CALCULATE correct\_answer BY evaluating question

RETURN (answer EQUALS correct\_answer), time\_taken

END METHOD

METHOD play

DISPLAY "Welcome to Nethaya's Maths Test!"

CALL choose\_difficulty()

FOR q FROM 1 TO var\_questions

DISPLAY current score

DISPLAY "Question q of var\_questions"

IF q IS last question THEN

DISPLAY "Challenge question!"

CALL create\_question(var\_max\_num, var\_max\_num \* 2) AS question

ELSE

CALL create\_question(var\_max\_num / 2, var\_max\_num) AS question

END IF

CALL ask\_question(question) AS (correct, seconds)

IF correct THEN

SET points TO MAX(1, 10 - seconds)

INCREMENT var\_score BY points

INCREMENT var\_correct\_count BY 1

DISPLAY "Correct! You answered in seconds second(s) - points point(s) awarded."

ELSE

DISPLAY "Incorrect! You answered in seconds second(s) - no points awarded."

END IF

APPEND (correct, seconds) TO var\_results

END FOR

CALL show\_results()

END METHOD

METHOD show\_results

CALCULATE percentage AS (var\_correct\_count / var\_questions) \* 100

CALCULATE avg\_time AS average of all times in var\_results

DISPLAY "Results:"

DISPLAY final score, correct answers %, average response time

IF var\_correct\_count EQUALS var\_questions THEN

DISPLAY "You're a Maths Master!"

END IF

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    DISPLAY "Breakdown:"
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    DISPLAY table headers "Question Correct Time"
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    FOR EACH (c, t) IN var_results WITH INDEX i
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        DISPLAY i, "Yes" IF c ELSE "No", t seconds
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```
    END FOR
```

```
END METHOD
```

```
END CLASS
```

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MAIN PROGRAM
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```
    CREATE instance game OF MathsTest
```

```
    CALL game.play()
```

```
END MAIN
```

```
END MathsTest Program
```