Software Development Coursework

Iñaki McKearney

Using C# to Develop a Maths Quiz

Candidate Number - 9135

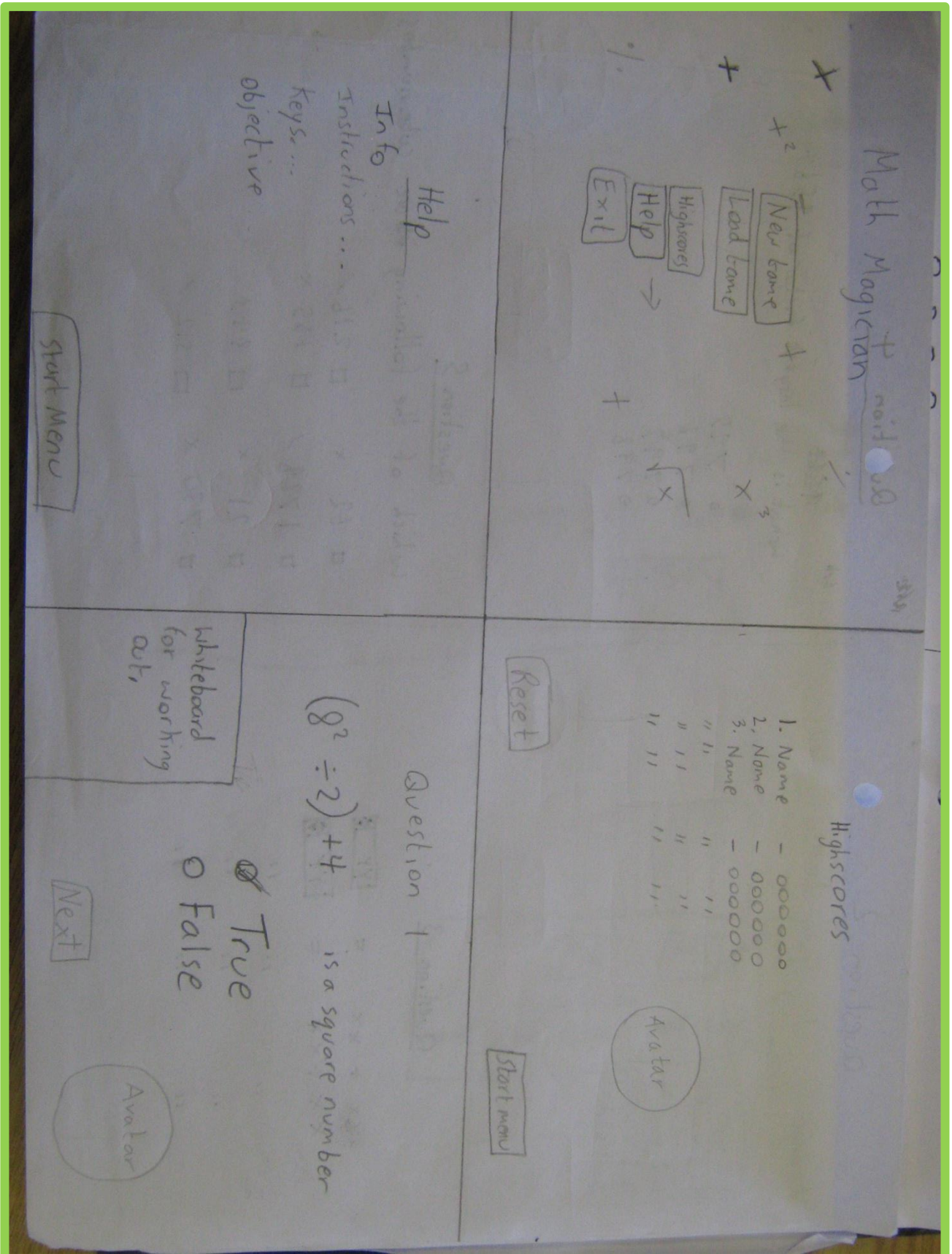## Centre Number - 71650

Contents

Background Information

My maths teacher approached me to request that I create a program to help his students revise for maths tests. This would allow the students to practise their skills at home, in their free time, in a manner that would be more entertaining for them and therefore enable them to concentrate on their revision by enjoying the activity at the same time. The easy-to-use layout of the quiz will mean that students can get started revising immediately without wasting any time. My teacher also suggested that I use a range of questions with different grades of difficulty to test the students' core math skills so that the practice they get is applicable to their tests. We concluded that the addition of a digital blackboard to the quiz would be beneficial to the students' maths abilities as they will be able to work out the answers without the use of a calculator or other electronic devices.
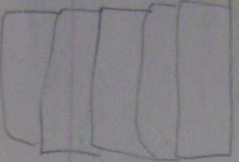
Design

Math Magician

New Game
Load Game
Highscores
Help → Exit

Help
Info
Instructions ...
Keys ...
objective

Start Menu

Highscores
1. Name — 000000
2. Name — 0000000
3. Name — 000000

Reset   Start menu   Avatar

Question
$(8^2 \div 2) + 4$ is a square number
◉ True
○ False

whiteboard for working out,

Next   Avatar

Question 2

Arrange in order from lowest to highest
(drag and drop)

2.3×10^3
1.5×10^6
1.2×10^{-11}
$4.6 \times 10^{-2?}$
3.4×10^2

Next   Avatar

Question 3

$xx + xx =$ [yy] [b]

$xx + xx =$ [yy] [b]

" = "

" = "

" = "

Next   Avatar

Question 4

What is the largest factor of 9564

9564

○ 795
○ 796
○ 797
○ 798

Next   Avatar

Question 5

which of the following is/are cube numbers

☐ 62 ✗   ☐ 216 ✓
☐ 1728 ✓   ☐ 135 ✗
☐ 21 ✗   ☐ 343
☐ 730 ✗   ☐ 512 ✓

Finish   Avatar

Are you sure you want to exit

| Yes | No |

Enter Name _____

Pick Your Avatar

| Einstein | Fibonacci | Galileo |

♪ 🔊

Screen after New browser is pressed

Results

You got 00%   welldone!/Hardluck

Q1. x %   (green or red depending on %)
Q2
Q3.
Q4.
Q5.

00:00
Timed Time/
longwaze duration
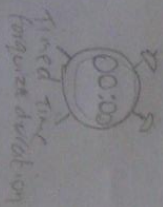
| Highscores | Restart | Menu |

start menu

MSCW User Requirements

Must Have (Critical for project success):
- Questions
- Answers
- Navigation Buttons
- Feedback/Verification System

Should Have (Important for project success):
- Blackboard
- Help System
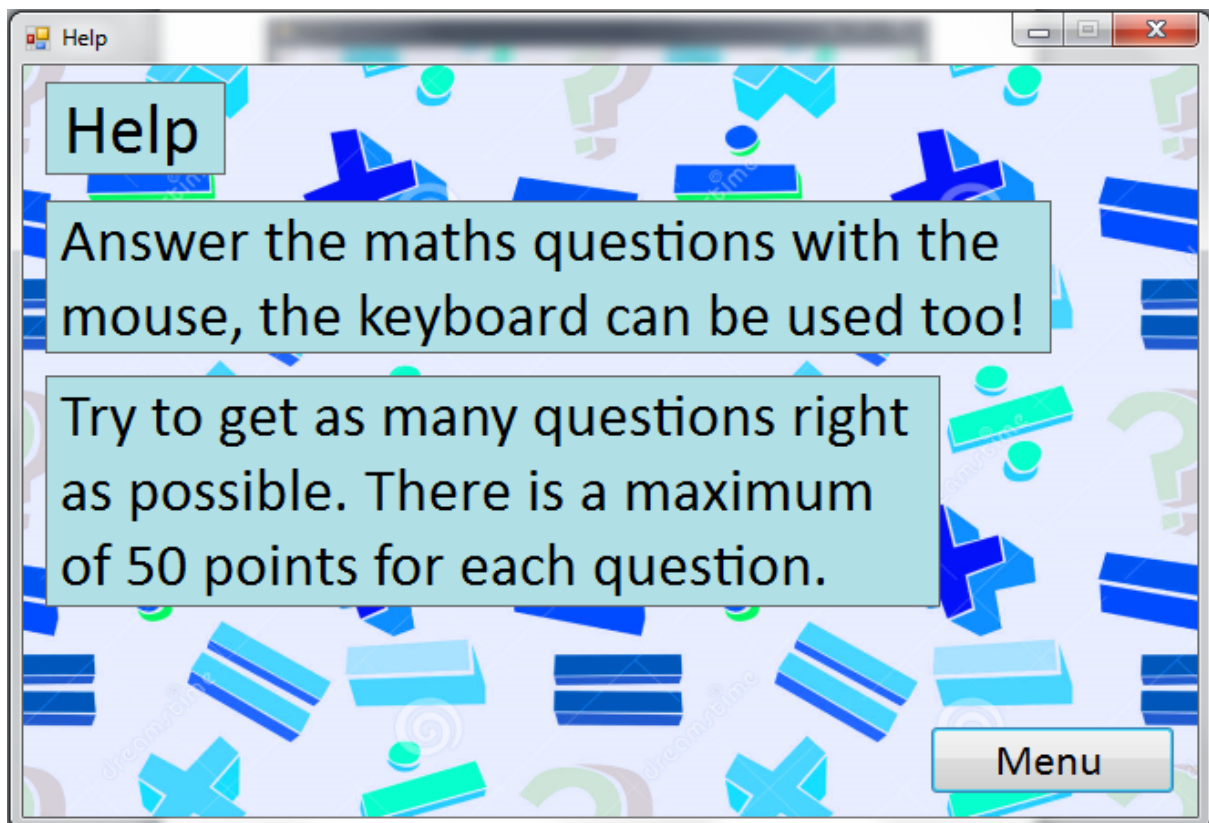- Score
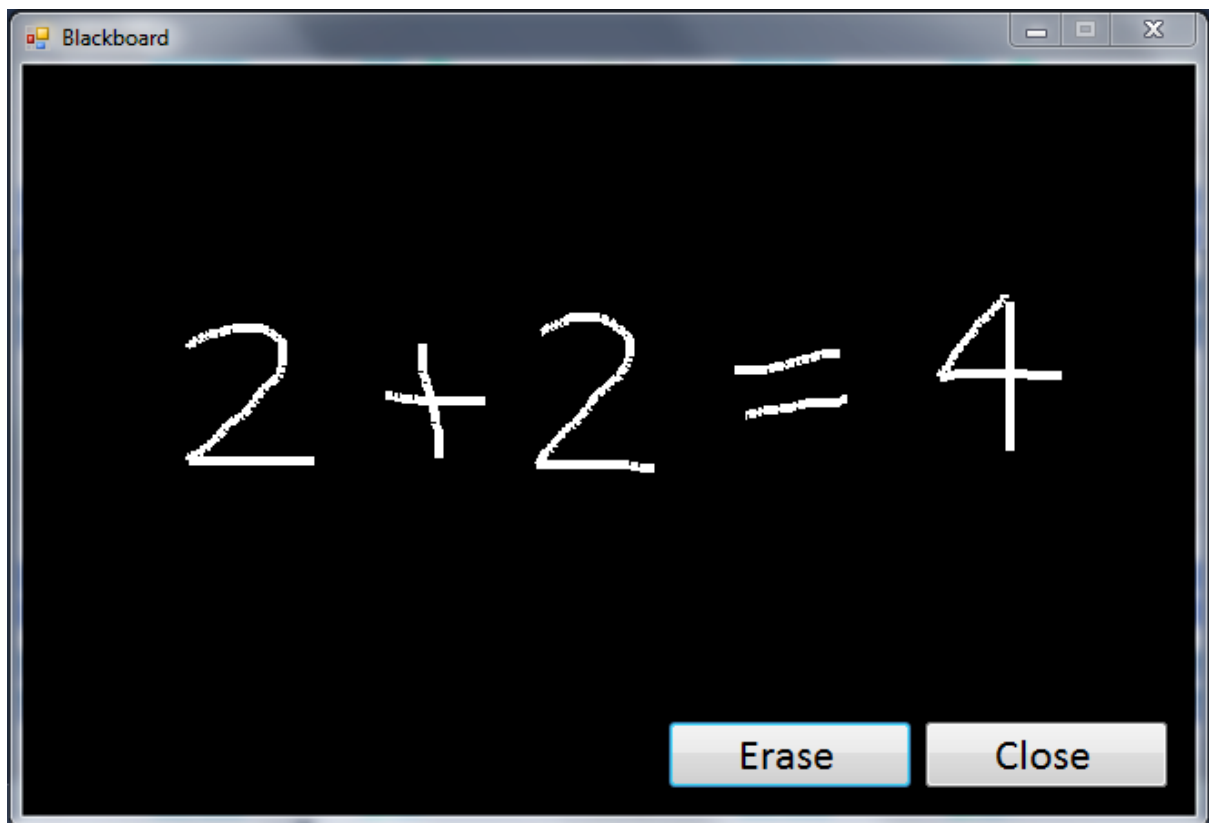- Appropriate Graphics

Could Have (Nice to have):
- High Scores
- Presence check
- Numeric Validation
- Player Avatar

Won't Have (Least-Critical, no priority):
- Timer
- Sound
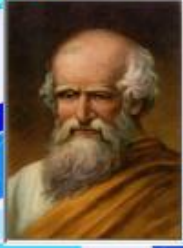- Colour variety for blackboard pen
- Save files

Screendumps

Form1

Math Magician

New Game

Help

High Scores

Last Player's Score:

95%

Exit

Help

Help

Answer the maths questions with the mouse, the keyboard can be used too!

Try to get as many questions right as possible. There is a maximum of 50 points for each question.

Menu

Blackboard

2 + 2 = 4

Erase   Close

New_Game

Enter your name:

Choose an Avatar

Fibonacci   Archimedes   Pythagoras

Start   Menu

Question1

Question 1

$(8^2 \div 2) + 4$ is a...

Square Number

Cube Number

Player

Blackboard | Next

Question2

Question 2

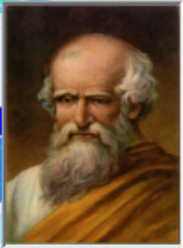Arange these standard form numbers from highest to lowest (Drag and Drop)

2.3 X 10^3

1.5 X 10^6

3.2 X 10^-4

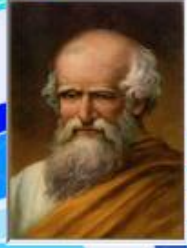4.6 X 10^7

3.9 X 10^-2

Player

Blackboard | Next

Question 3

What is the correct answer for each?

20 + 40 =	0
43 - 31 =	0
30 / 15 =	0
11 × 5 =	0
56 / 8 =	0

Player
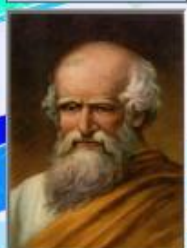
Blackboard   Next

Question 4

Which of these are factors of 231?

☐ 7

☐ 9

☐ 4

☐ 11

☐ 3

Player
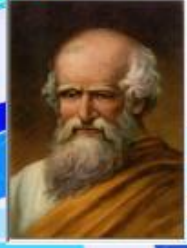
Blackboard   Next

Question 5

Which of these are square numbers?

64 [▼]

81 [▼]

69 [▼]

2 [▼]

9 [▼]

Player

Blackboard   **Finish**

Results
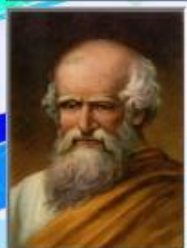
Question 1:	5
Question 2:	25
Question 3:	25
Question 4:	25
Question 5:	25

Total Percentage

100%

Name

Highscores   **Menu**

Highscores

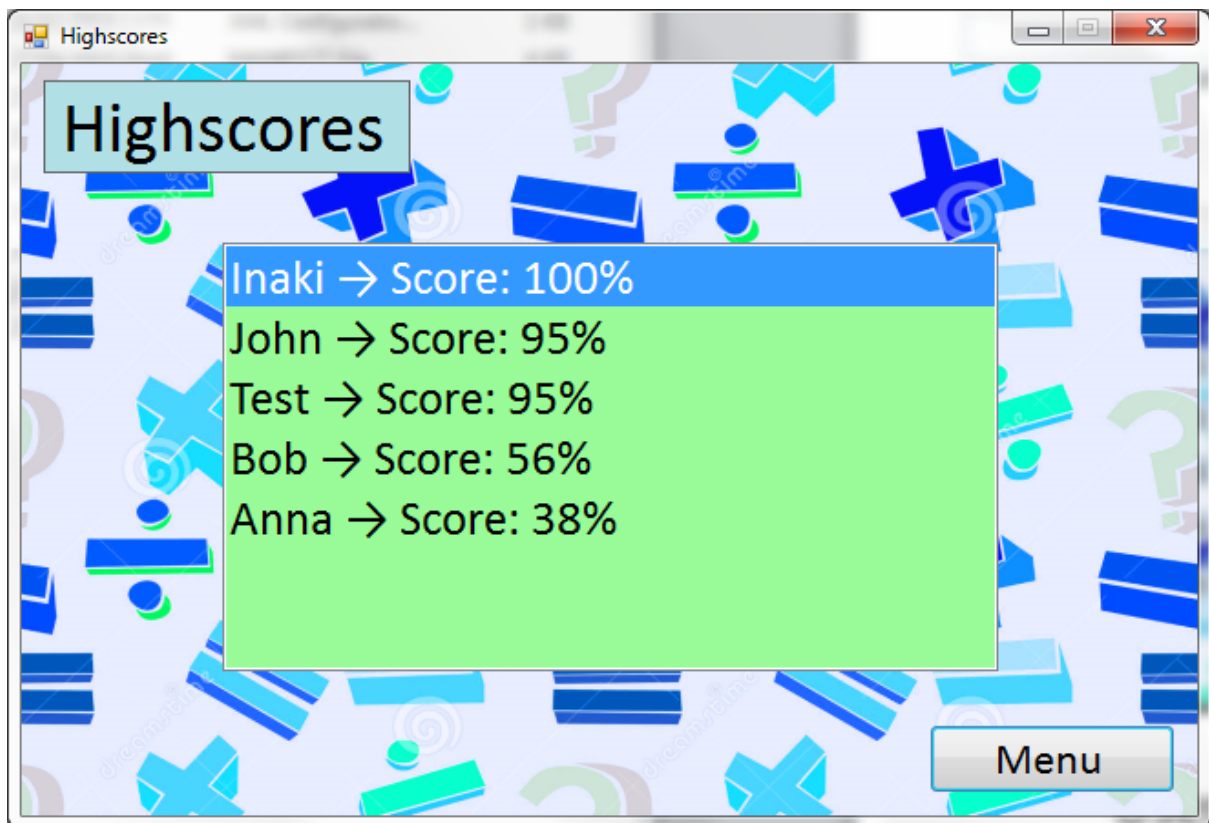Inaki → Score: 100%
John → Score: 95%
Test → Score: 95%
Bob → Score: 56%
Anna → Score: 38%

Menu

User Requirements

Scoring System

- Player is awarded 5 points for each correct answer
- Some longer questions may offer up to 25 points
- Player score will be displayed as a percentage so that the user can get a bet idea of their performane.
- Players will be given an option to save their high score

Player Profile

- Player has the option of choosing from three avatars: Archimedes, Fibonacci and Pythagoras.
- The player will be able to use their name to save their high score.

Types of Question

- True or False
- Drag and Drop
- Numeric Up Down
- Multiple Choice
- Multiple Answer

Developer Signature: _____

Signature: _____