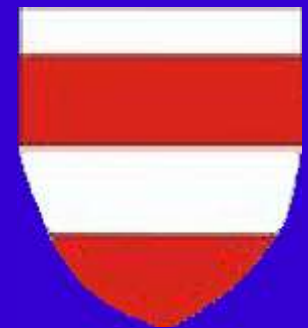


What Types of Electronic Questions Objects are Needed?

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Agenda:

- 1 Goal of the paper
- 2 UoD
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- 5 The Term 'Universal Question object'
- 6 The Term 'Question Object'
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1 Goal of the Paper

- to support the use of ICT in education in the field of electronic testing;
- to open this problem domain for wider range of takers.

2 UoD (* 1. 9. 2004)

- Faculty of Economics and Management (9)
- Faculty of Military Technology (13)
- Faculty of Military Health Sciences (9+2)

- NBC Defence Institute
- Language Training Centre
- Physical Training and Sports Centre

3 Department of CIS (* 1. 9. 2005)

Current structure:

- Radio communication systems
- Telecommunication systems
- Information systems and programming
- Computer networks and operation systems
- Information security

4 Study Branch: Communication and Information Systems (CIS)

- Bachelor Study (P) (+ in English)
- Following Master Study (P,C)
- Doctoral Study (P,C) (+ in English)

- Lifelong Learning - Courses

5 The Term 'Universal Question object'

$$\text{UQO} = [\text{assgn}, \text{defr}, \text{evalr}, \text{fdb}], \quad (1)$$

where

assgn is the assignment,

defr defined reactions,

evalr evaluation of reactions,

fdb is feedback.

6 The Term ' Question object'

$$QO = [id, qf, ans, sco, fdb], \quad (2)$$

where

id is name of the question type prototype,

qf is question formulation,

ans are answers,

sco is scoring,

fdb are feedback conditions (feedback can be immediate and delayed).

7 The Term ‘Electronic Question’

$$Q = [QO, as], \quad (3)$$

where

QO is a question object,

as is the list of answers which were generated from **QO**.

‘**as**’ is a subset of ‘**ans**’ from the previous definition 2

8 Useful Types of Question Objects

- Multiple Choice,
- Multiple Choice Multiple Correct,
- True-False,
- Matching,
- Short answers.

9 The Term 'Life Cycle of a Question Object'

$$\text{LC_QO} = [\text{S1}, \text{S2}, \dots, \text{S8}], \quad (2)$$

where

S1 is creation of the main idea of question object proposal;

S2 is making a standardized description of question object proposal;

S3 is discussion and adjustment of question object proposal;

S4 is creation of accepted question object in chosen authoring software;

S5 is discussion and adjustment of the overall design and especially the graphic design of electronic questions;

S6 is question object usage;

S7 is maintenance of question object;

S8 is discard of question object.

10 Practical Example of QO Realization

- 10.1 The Extended Properties for Multiple Choice Question – Tab General
- 10.2 The Extended Properties for Multiple Choice Question – Tab Answers
- 10.3 The Extended Properties for Multiple Choice Question – Tab Scoring
- 10.4 One of the Possible Multiple Choice Question Realization

10.1 The Extended Properties for Multiple Choice Question – Tab General

The screenshot shows a dialog box titled "Properties for Multiple Choice Question" with a close button (X) in the top right corner. The dialog has five tabs: "General" (selected), "Answers", "Scoring", "Immediate Feedback", and "Delayed Feedback".

Question name:
Test T13 Multiple Choice 6/7

Limits on interaction

- Limit time Maximum time (secs): 60
- Limit tries Maximum tries: 1

A "try" is counted every time delayed feedback or a score is provided. This option is ignored if "Cannot change responses" is checked.

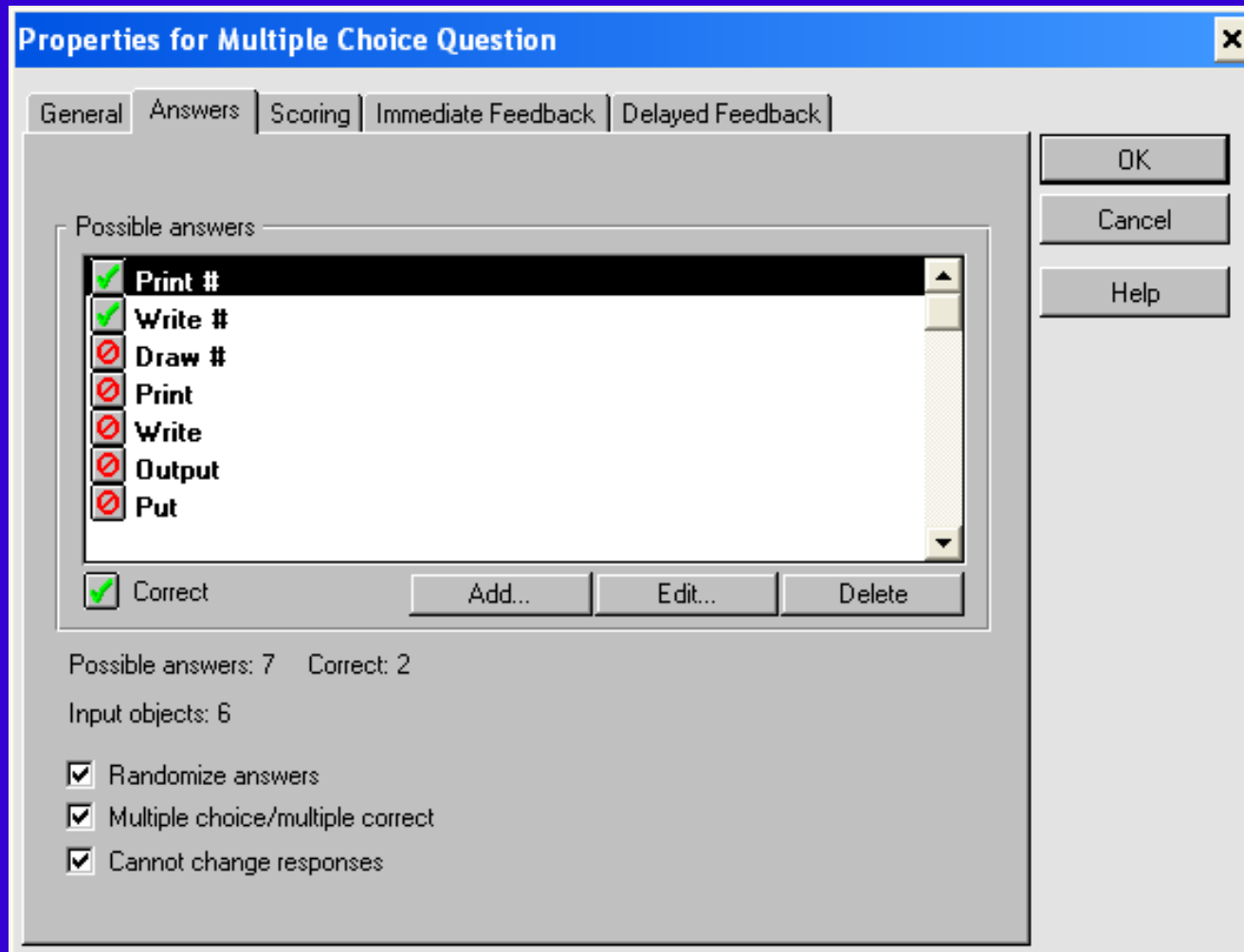
Automatically reset question: Never

Summary:

Possible answers:	7	Correct:	2
Score this question:	Yes		
Immediate Feedback:	Enabled		
Delayed feedback:	Specified		

Buttons: OK, Cancel, Help

10.2 The Extended Properties for Multiple Choice Question – Tab Answers



10.3 The Extended Properties for Multiple Choice Question – Tab Scoring

The screenshot shows a dialog box titled "Properties for Multiple Choice Question" with a close button (X) in the top right corner. The "Scoring" tab is selected, and the "Score this question" checkbox is checked. Below this, a list of possible answers is shown in a scrollable area. The first two answers, "Print #" and "Write #", are marked as correct with green checkmarks. The remaining five answers, "Draw #", "Print", "Write", "Output", and "Put", are marked as incorrect with red X's. Below the list, the "Score weight of selected answer" is set to 50%, and the "Automatic" checkbox is checked. At the bottom, the "Lowest possible score" is 0 and the "Highest possible score" is 4. The "Possible answers" count is 7, and the "Correct answers" count is 2. For a partially correct response, the "Use the weight assigned to each possible answer to compute an exact score" radio button is selected.

Properties for Multiple Choice Question

General | **Answers** | Scoring | Immediate Feedback | Delayed Feedback

Score this question

Possible answers:

- Print #
- Write #
- Draw #
- Print
- Write
- Output
- Put

Score weight of selected answer: % Automatic

Lowest possible score: Possible answers: 7

Highest possible score: Correct answers: 2

For a partially correct response:

- Use the weight assigned to each possible answer to compute an exact score
- Report the lowest score: 0
- Report the highest score: 4

OK
Cancel
Help

10.4 One of the Possible Multiple Choice Question Realization

ToolBook - Test_T13.tbk

File Edit View Go Text Help

Q6/7: What statement(s) you can use for writing data into a text file in MS Visual Basic?

Time limit:
00:21

Output Put

Print Write #

Write Print #

Show Score Q6/7

Percent of Maximum Score

Score: 4 out of 4

Show Delayed Feedback

Excellent!!

Reset Question 6/7 Reset Test T13

Exit Test T13

◀ Prev [Progress Bar] Next ▶

11 Conclusion

(1/4)

- The creation of good electronic tests is often a more demanding work than the creation of good study texts.
- This difficult work is sometimes an underestimated work.
- This topic (electronic questions as the items of electronic tests and self tests) requires more attention. Its contribution to the expected study results can be very significant.

8 Conclusion

(2/4)

- The electronic tests and especially electronic self tests should be the integral part of electronic support of nowadays education.
- The utilization of various question objects can bring a new quality and new possibilities to the testing and self testing processes.
- Paper does not give the complete solution, but can inspire the potential users (academic staff – teachers and cooperating students) to go this way.

8 Conclusion

(3/4)

- Electronic self tests and tests should be the necessary supplement of study materials at the educational institution.
- Electronic self tests should be ever used without monitoring the students - the problem of study privacy necessity.
- List of available and recommended QO templates should be prepared and known at the educational institution.

8 Conclusion

(4/4)

- Every department of educational institution should have a contact and responsible person for the electronic questions creation.
- This contact person should be interested in both theory and also practical usage of electronic self tests and tests.
- Close cooperation with students is the key for the high-quality self tests and tests creation and usage.

**Thank you for your
attention.**

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