Illumined Minds Welcome Dinner

Organizer of International Bebras Challenge in Pakistan

Who we are

- **In short**: continuing the work that we started for Bebras under the Innovative Learning company, when my father, Prof. Alla Ditta Raza Choudary was director of that company

Who we are

Who we are

Longer version:

- Myself, **Dr. Marios Omar Choudary**, CEO of Illumined Minds
  - son of Prof. Alla Ditta Raza Choudary who started Kangaroo and Bebras in Pakistan
  - Through Kangaroo Sans Frontiers, then Innovative Learning
- My father asked me to lead the Bebras competition since 2016
  - Participating to almost all workshops since then
  - Preparing the questions/marking, etc.
- After death of my father, the only way to continue with leadership of Bebras in Pakistan was to make this new company
- I have a PhD in Computer Science from University of Cambridge and I am currently associate professor of Computer Science

Who we are

- **Mr. Ammar Ali Yasir**: National Manager of lllumined Minds
- B.A in Economic & Political Science and M.A in Mass Communication from Karachi University
- Expertise in Channel Management, Outreach, Strategic Planning, Relationship Building, Market Analysis, Product Knowledge, Data Analysis and Communication Skills

Who we are

- **Mr. Abdul Rauf**: Local coordinator Lahore
- Expert in logistics and human resources
- Administrative and logistics manager

Who we are

- **Eng. Ionuț Gorgos** and **Eng. Tiberiu Iorgulescu**
- Experts in Computer Science, with B.S. and M.S. degrees
- Contributors to the development of tasks and children/student papers for the national competition.

About Bebras and the International Challenge

- **International initiative** aiming to promote Informatics (Computer Science, or Computing) and computational thinking among school students at all ages
- Started around the Kangaroo community, following similar design
- Composed from **National Member Organizers (one per country)** with NBOs from across the world
- NBOs typically involved also in Informatic Olympiads and other international competitions such as Kangaroo, etc.

Advantage of children participation in Bebras

- Access to **an international competition**, following **same standards across the world** (Europe, America, Asia, etc.)
- **Student recognition** of participation
- **Extra incentive**: my own personal recommendation to the best 10 students across the country in the last level (student), after a personal interview.

Who is Bebras

Who is Bebras

Who is Bebras

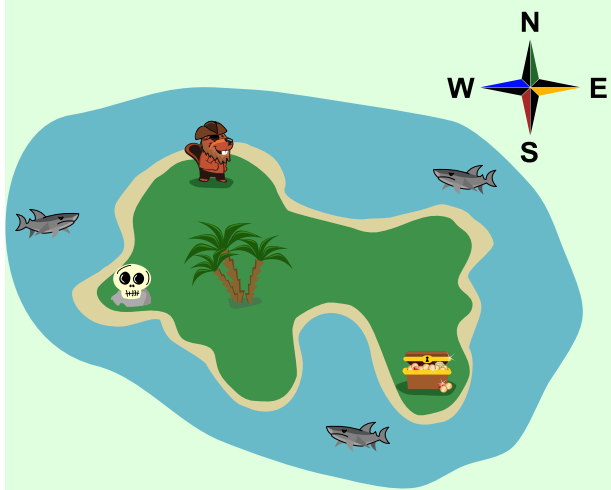
What is Bebras

2024-CZ-02-eng The pirate and the treasure

6yo–8yo: –	*8yo–10yo:* hard	*10yo–12yo:* medium	*12yo–14yo:* easy	*14yo–16yo:* –	*16yo–19yo:* –
Answer Type: Multiple-Choice (□ keep order of multiple-choice/-select)					
Categories (click to choose): ☑ algorithms and programming □ data structures and representations			□ computer processes and hardware □ communication and networking □ interactions, systems and society		
Equivalent Tasks: 2018-SI-01 – only a little bit					

Body

A treasure chest is buried somewhere on the Treasure island. A pirate received an instruction sequence to reach the treasure chest. The instruction sequence contains 4 steps, where each step is to move exactly one mile either in the South (S) or the East (E) direction. The instruction sequence also ensures the pirate will not fall into the sea that is full of sharks.



Question / Challenge

Which one of the following instruction sequence has the pirate received?

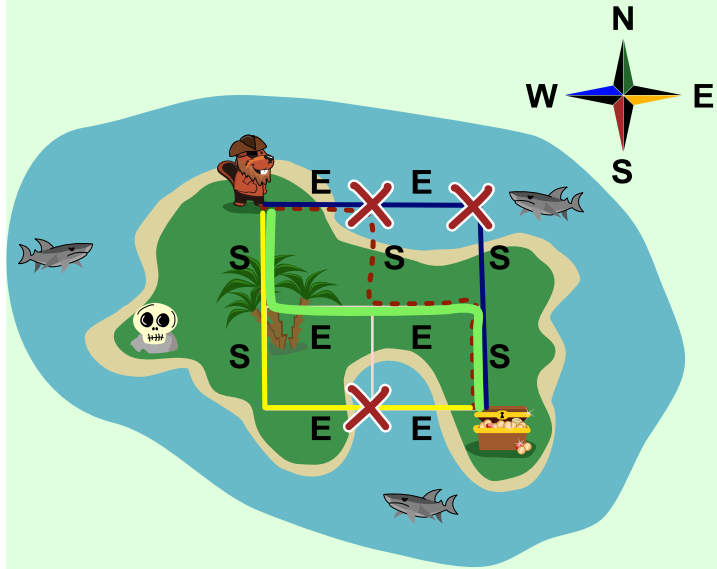
Answer Options / Interactivity Description

A) S, S, E, E
B) E, E, S, S
C) E, S, S, E
D) S, E, E, S

What is Bebras

Answer Explanation

Correct answer is D) S, E, E, S



All paths of different colors and different styles are shown in the picture.

The correct path (D) to the treasure is shown on the picture by green path. All other paths (yellow (A), blue (B), and red dashed (C)) lead the pirate into the sea. The pirate would be on one of the X mark in the sea at end of the first, second, or third instruction step.

We don't need to know how long a mile is on the picture. **It can be understood from the task statement that the four steps are all of equal distance.** Since all answers contain two E's and two S's, an invisible 2x2 grid can be drawn with the pirate and the treasure box as two diagonally opposite corners. It is easy to see that only by going through the center point, can the pirate avoid falling into the sea.

What is Bebras

This is Informatics

Maps are often represented in computer science as graphs with vertices and edges that connect the vertices. Algorithms are often developed based on the graph data structure to solve various problems. In this task, the invisible map contains 9 vertices and 12 edges with an additional constraint that the edges run on horizontal and vertical directions only. Movement in the given instruction corresponds to traversing the graph from one vertex to another along the connecting edge.

This is Computational Thinking

This task requires some algorithmic thinking to decide which algorithm (sequence of instructions) achieve the goal (getting to the treasure chest) while meeting the constraint (not falling into the sea). A certain amount of decomposition is also necessary because the solver needs to imagine how the answer, the code of type E, E, S, S consists of two instructions E, S (which are not described exactly because we don't know how much is 1 mile in the picture) and how the movement of the pirate really looks like.

Our Bebras Challenge in 2024

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- 2 students obtained maximum score (100)
- Medals to top 3 scores (5 students)
- Participation certificates to all students, with special certificates to top 3 places in each school
- Cash prize (PKR 20.000) to top scorers
- Other prizes to first places in each school: caps, notebooks, keychains