General template to build a detailed sheet for each puzzle and problems treated by cMinds

The problem

Title of the problem: **Crossing a River**

//Long description of the problem. Be as detailed as possible.

LEVEL 2

There are 2 soldiers that have to cross a river. The bridge is broken and the river is deep. What to do? Suddenly the officer in charge spots 2 boys playing in rowboat by the shore. The boat is so tiny; however, that it can only hold 2 boys or 1 boy&1 soldier or 1 soldier.

All the soldiers and boys should succeed in crossing the river in the boat. Finally, both soldiers and boys should be successfully placed on the other shore of the river.

LEVEL 1

There are 2 soldiers that have to cross a river. The bridge is broken and the river is deep. What to do? Suddenly the officer in charge spots 2 boys playing in rowboat by the shore. The boat is so tiny; however, that it can only hold 2 boys or 1 boy&1 soldier or 1 soldier.

All the soldiers should succeed in crossing the river in the boat. Finally, 2 soldiers should be successfully placed on the other shore of the river.

Data

//All the numerical parameters of the problem.

LEVEL 2

2 soldiers

2 boys

Shore A of the River

Shore B of the River

1 boat

LEVEL 1

2 soldiers

2 boys

Shore A of the River

Shore B of the River

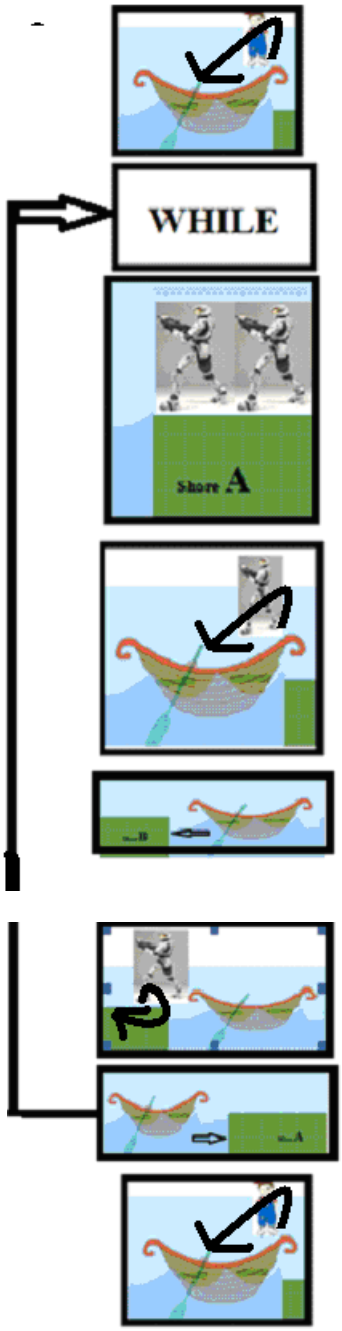
1 boat

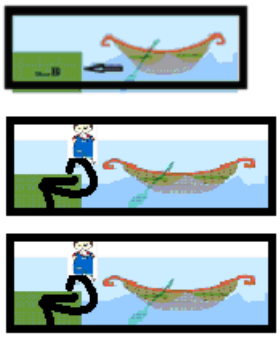
Solution

We need to describe here the most ideal solution for the problem, both with a simple algorithm and with a graphical solution

LEVEL 2

1. Graphical





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2. Algorithmic - Pseudocode

The boy enters the boat

While (Soldiers exists in Shore A) {

One soldier enters the boat

The boat is crossing the river towards shore B

The soldier gets of the boat

The boat is crossing the river towards shore A

}

The boy enters the boat

The boat is crossing the river towards shore B

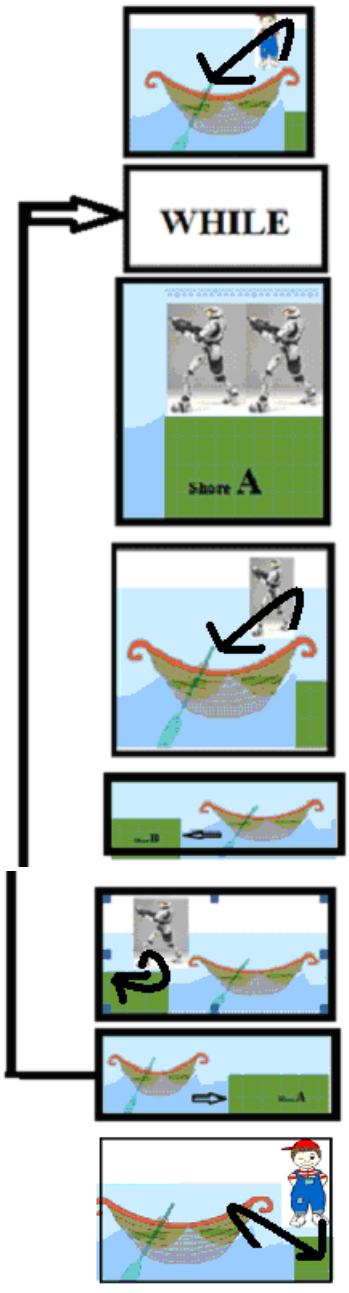
The boy gets of the boat on shore B

The boy gets of the boat on shore B

--- end of solution---

LEVEL 1

3. Graphical



4. Algorithmic - Pseudocode

The boy enters the boat

While (Soldiers exists in Shore A) {

One soldier enters the boat

The boat is crossing the river towards shore B

The soldier gets of the boat

The boat is crossing the river towards shore A

}

The boy gets of the boat on shore A

--- end of solution---

List of needed assets (aka talking about the assets)

//Now that we have a solution, we can describe different scenarios (of course not all of them) requiring different assets. This will give us all the assets we need. We need to keep it as simple as possible.It is a list of all the assets used in the result zone and all their possible variations.

For example, if we have a result box for eggs with dots, we need to have it in different states:

- *empty*
- *one egg*
- *two eggs*
- *full*

Important: all the assets described here MIGHT NOT be new. For example, we already have assets for the robot walking or picking stuff. But they still need to be described here.The brand new assets will be singled out in the list below. Also, the assets are just described not pictured here. Again, only the new assets will be pictured below. We could use the same numbering system as below for the assets to keep some level of coherence. In order to have a list as clear as possible, we divide the assets into four categories: action, tests, code, result zone//

A. Action

A1. The boy enters the boat

A2. The boy gets of the boat on shore A

A3. The boy gets of the boat on shore B

A4. One soldier enters the boat

A5. The soldier gets of the boat

A6. The boat is crossing the river towards shore A

A7. The boat is crossing the river towards shore B

B. Tests

B1. Soldiers exists in Shore A

C. Code

C1. WHILE

D. Result zone general purpose assets

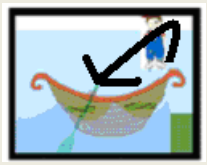
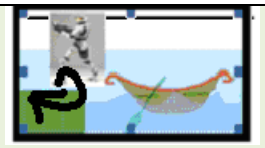
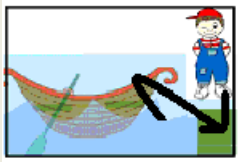
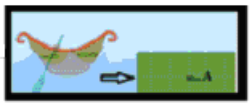
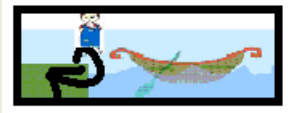
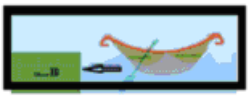
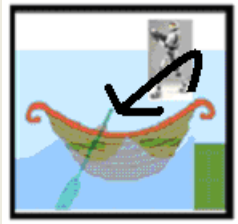
D1. 2 boys & 2 soldiers on shore A (initial state) **D2.** 1 boy & 2 soldiers on shore A **D3.** 1 boy & 1 soldier on shore A **D4.** 2 boys on shore A **D5.** 1 boy on shore A **D6.** Shore A is empty (final state)	**D7.** 1 soldier on shore B **D8.** 2 soldiers on shore B **D9.** 1 boy & 2 soldiers on shore B **D10.** 2 boys & 2 soldiers on shore B (final state) **D11.** Shore B is empty (initial state)
D12. 1 boy is on the boat by the shore A **D13.** 1 boy & 1 soldier are on the boat by the shore A **D14.** 1 boy & 1 soldier are on the boat moving towards shore B **D15.** 1 boy & 1 soldier are on the boat by the shore B **D16.** 1 boy is on the boat by the shore B **D17.** 1 boy is on the boat moving towards shore A **D18.** 2 boys are on the boat by the shore A **D19.** 2 boys are on the boat moving towards shore B **D20.** 2 boys are on the boat by the shore B	

Visualization (aka drawing the assets)

Nothing more than a drawing of an asset and a number which will be used throughout this document.

1. Action

//All the assets which will be available in the action toolbox.

	A1		A5
	A2		A6
	A3		A7
	A4		

2. Test

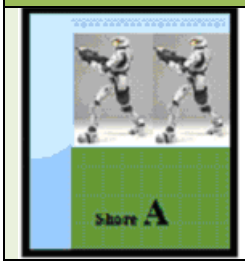
All the assets which will be available in the tests toolbox.

Warning: as we are using switch, we actually need to sets of tests : one very general which is used when we pick what the switch is about, one detailed which describes all the possible test in one of the selected test category.

Example: we have one "EGG" test category and several corresponding sub-category such as:

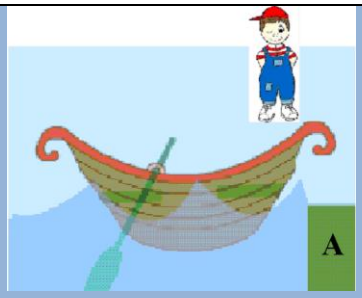
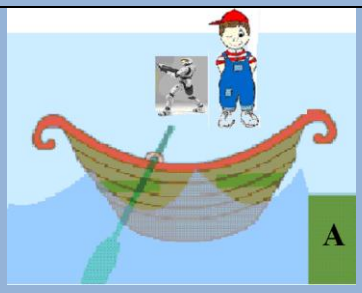
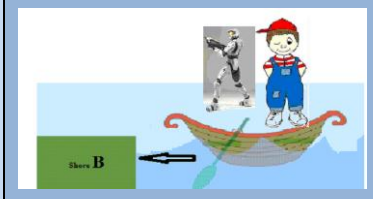
- *egg with stripes*

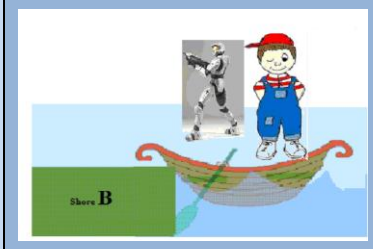
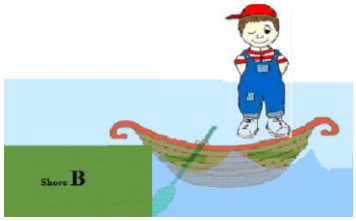
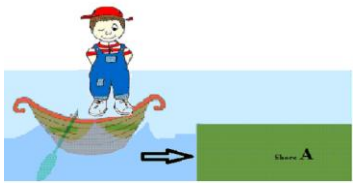
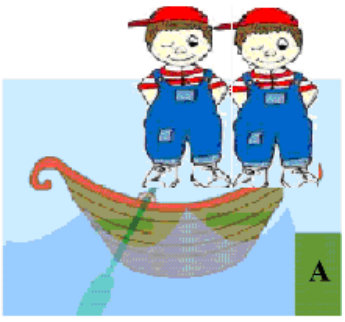
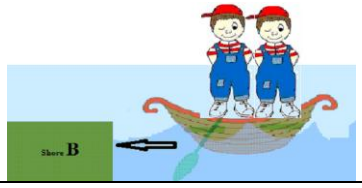
- *egg with dots*
- *etc..*

TESTS	
	B1

3. General purpose

//Here we have all the new assets which will be used in the result zone.

	D1		D12
	D2		D13
	D3		D14

	D4		D15
	D5		D16
	D6		D17
	D7		D18
	D8		D19

	D9		D20
	D10		
	D11		