Prac 8 Design

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Problem description

Initialisation

- The size of the environment is specified via command line arguments.
- A command line argument provided number of batteries are spread throughout the environment.
- Every empty space has a 15% chance of containing a pit-trap.
- The player is placed in a random row and column but may not be placed on top of either pit traps or batteries
- The player starts with one battery
- The number of turns until dawn is calculated as being two times the number of batteries.

Movement

- The player may move north (up), south (down), east (right), or west (left). The player may not move outside of the game area. The player may either turn their torch on or off.
- If the player moves on top of a cell containing a battery they pick it up and the number of turns of light they have available is increased by 3.
- If they do not have enough battery power their torch must be off.
- If the torch is on the player can see the whole environment as is safe from the Grue
- If the torch is off the player can only see in a one square radius and suffers a 20% chance of being attacked by the Grue.

End Game

• The game ends when the sun rises, the player is attacked, or the player steps into a pit-trap. Consider the competencies as laid out in the mark sheet.

Input and Outputs

Inputs	
W (Up)	Standard input Stream
S (Down)	Standard input Stream
A (Left)	Standard input Stream
D (Right)	Standard input Stream
T (Turn on torch)	Standard input Stream
Output	
Character moves based on case	Standard output Stream

Data Format

Identifier	Data Type	Description
ChInput	Char	Player movements
ConvToInt	Integer	Converts arguments to integer
InitWorld	Void	Initialises the world
OutputWorld	Void	Outputs the World
GetRand	Integer	Generates random number
EndGame	Void	Checks if conditions are met to end the game
BatteryCount	Void	Counts the number of batteries

Pseudo Code (Movement)

Switch

Case W

    D2Arr Row - -

Case S

    D2Arr Row ++

Case A

    D2Arr Col - -

Case D

    D2Arr Col ++

UML