Conway

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Chapter 1

File Index

1.1 File List

Here is a list of all files with brief descriptions:

Chapter 2

File Documentation

2.1 conway.c File Reference

Implements Conway's game of life.

```
#include "conway.h"
#include "helper_functions.h"
#include <stdio.h>
```

Functions

- void initialize_world (int world[ ][WORLD_WIDTH])

  Handles world initialization. Allows the user to select different input methods to customize the world to load. Includes instructions on how to manually load a world file.
- void advance_generation (int world_to_advance[ ][WORLD_WIDTH])

  Advances the current generation, analyzing the future state of all cells.
- int read_generations (void)

  Reads an unsigned number from stdin.
- void print_world (int world[ ][WORLD_WIDTH])

  Prints the world state to stdout in a polished format.

2.1.1 Detailed Description

Implements Conway's game of life.

Author

Grupo 7

2.1.2 Function Documentation

2.1.2.1 advance_generation()

```
void advance_generation (
            int world_to_advance[][WORLD_WIDTH] )
```

Advances the current generation, analyzing the future state of all cells.

Parameters

world_to_advance	world matrix where the current state is and the future state will be saved before returning.

Note

This function implements John Conway's Game of Life rules

- A living cell with exactly two or three living neighbors stays alive
- A dead cell with exactly three living neighbors becomes alive

2.1.2.2 initialize_world()

```
void initialize_world (
            int world[][WORLD_WIDTH] )
```

Handles world initialization. Allows the user to select different input methods to customize the world to load. Includes instructions on how to manually load a world file.

Parameters

world	matrix where the initial world state is saved.

2.1.2.3 print_world()

```
void print_world (
            int world[][WORLD_WIDTH] )
```

Prints the world state to stdout in a polished format.

Parameters

world	world to print to stdout

2.1.2.4 read_generations()

```
int read_generations (
            void  )
```

Reads an unsigned number from stdin.

Returns

1 if the first char is '\n', -1 if it's 'q', the input number if it's valid, 0 otherwise.

2.2 conway.h File Reference

Implements Conway's game of life.

Macros

- #define WORLD_WIDTH 25

  Ancho del mundo. Número de columnas.
- #define WORLD_HEIGHT 15

  Altura del mundo. Número de filas.
- #define OUTSIDE_STATE DEAD

  Estado de las celdas del borde externo.
- #define ALIVE_CHAR '*'

  Caracter que representa una celda viva.
- #define DEAD_CHAR ' '

  Caracter que representa una celda muerta.
- #define SEPARATOR '|'

  Separador de columnas.
- #define ALIVE 1

  Valor interno de una celda viva.
- #define DEAD 0

  Valor interno de una celda muerta.

Functions

- int read_generations (void)

  Reads an unsigned number from stdin.
- void advance_generation (int world_to_advance[ ][WORLD_WIDTH])

  Advances the current generation, analyzing the future state of all cells.
- void print_world (int world[ ][WORLD_WIDTH])

  Prints the world state to stdout in a polished format.
- void initialize_world (int world[ ][WORLD_WIDTH])

  Handles world initialization. Allows the user to select different input methods to customize the world to load. Includes instructions on how to manually load a world file.

2.2.1 Detailed Description

Implements Conway's game of life.

Author

Grupo 7

2.2.2 Macro Definition Documentation

2.2.2.1 ALIVE

```
#define ALIVE 1
```

Valor interno de una celda viva.

2.2.2.2 ALIVE_CHAR

```
#define ALIVE_CHAR '*'
```
Caracter que representa una celda viva.

2.2.2.3 DEAD

```
#define DEAD 0
```
Valor interno de una celda muerta.

2.2.2.4 DEAD_CHAR

```
#define DEAD_CHAR ' '
```
Caracter que representa una celda muerta.

2.2.2.5 OUTSIDE_STATE

```
#define OUTSIDE_STATE DEAD
```
Estado de las celdas del borde externo.

2.2.2.6 SEPARATOR

```
#define SEPARATOR '|'
```
Separador de columnas.

2.2.2.7 WORLD_HEIGHT

```
#define WORLD_HEIGHT 15
```
Altura del mundo. Número de filas.

2.2.2.8 WORLD_WIDTH

```
#define WORLD_WIDTH 25
```
Ancho del mundo. Número de columnas.

2.2.3 Function Documentation

2.2.3.1 advance_generation()

```
void advance_generation (
            int world_to_advance[][WORLD_WIDTH] )
```
Advances the current generation, analyzing the future state of all cells.

Parameters

world_to_advance	world matrix where the current state is and the future state will be saved before returning.

Note

This function implements John Conway's Game of Life rules

- A living cell with exactly two or three living neighbors stays alive

- A dead cell with exactly three living neighbors becomes alive

2.2.3.2 initialize_world()

```
void initialize_world (
            int world[][WORLD_WIDTH] )
```

Handles world initialization. Allows the user to select different input methods to customize the world to load. Includes instructions on how to manually load a world file.

Parameters

world	matrix where the initial world state is saved.

2.2.3.3 print_world()

```
void print_world (
            int world[][WORLD_WIDTH] )
```

Prints the world state to stdout in a polished format.

Parameters

world	world to print to stdout

2.2.3.4 read_generations()

```
int read_generations (
            void  )
```

Reads an unsigned number from stdin.

Returns

1 if the first char is '\n', -1 if it's 'q', the input number if it's valid, 0 otherwise.

2.3 helper_functions.c File Reference

Group 7 helper functions.

```
#include <stdio.h>
#include "helper_functions.h"
```

Functions

- void clear_screen (void)

  Clears terminal in an OS-specific basis.
- void flush_stdin (char limit)

  Flushes the stdin buffer. Takes characters from stdin until limit is found.

2.3.1 Detailed Description

Group 7 helper functions.

Author

Grupo 7

2.3.2 Function Documentation

2.3.2.1 clear_screen()

```
void clear_screen (
            void  )
```

Clears terminal in an OS-specific basis.

2.3.2.2 flush_stdin()

```
void flush_stdin (
            char limit )
```

Flushes the stdin buffer. Takes characters from stdin until limit is found.

Parameters

limit	Character that indicates where to stop flushing

2.4 helper_functions.h File Reference

Group 7 helper functions.

```
#include <stdlib.h>
```

Functions

- void clear_screen (void)

  Clears terminal in an OS-specific basis.
- void flush_stdin (char limit)

  Flushes the stdin buffer. Takes characters from stdin until limit is found.

2.4.1 Detailed Description

Group 7 helper functions.

Author

Grupo 7

2.4.2 Function Documentation

2.4.2.1 clear_screen()

```
void clear_screen (
            void  )
```

Clears terminal in an OS-specific basis.

2.4.2.2 flush_stdin()

```
void flush_stdin (
            char limit )
```

Flushes the stdin buffer. Takes characters from stdin until limit is found.

Parameters

limit	Character that indicates where to stop flushing

2.5 main.c File Reference

Plays Conway's Game of Life.

```
#include <stdio.h>
#include "helper_functions.h"
#include "conway.h"
```

Functions

- int main (void)

  Main function.

2.5.1 Detailed Description

Plays Conway's Game of Life.

Author

Grupo 7

2.5.2 Function Documentation

2.5.2.1 main()

```
int main (
            void  )
```

Main function.

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