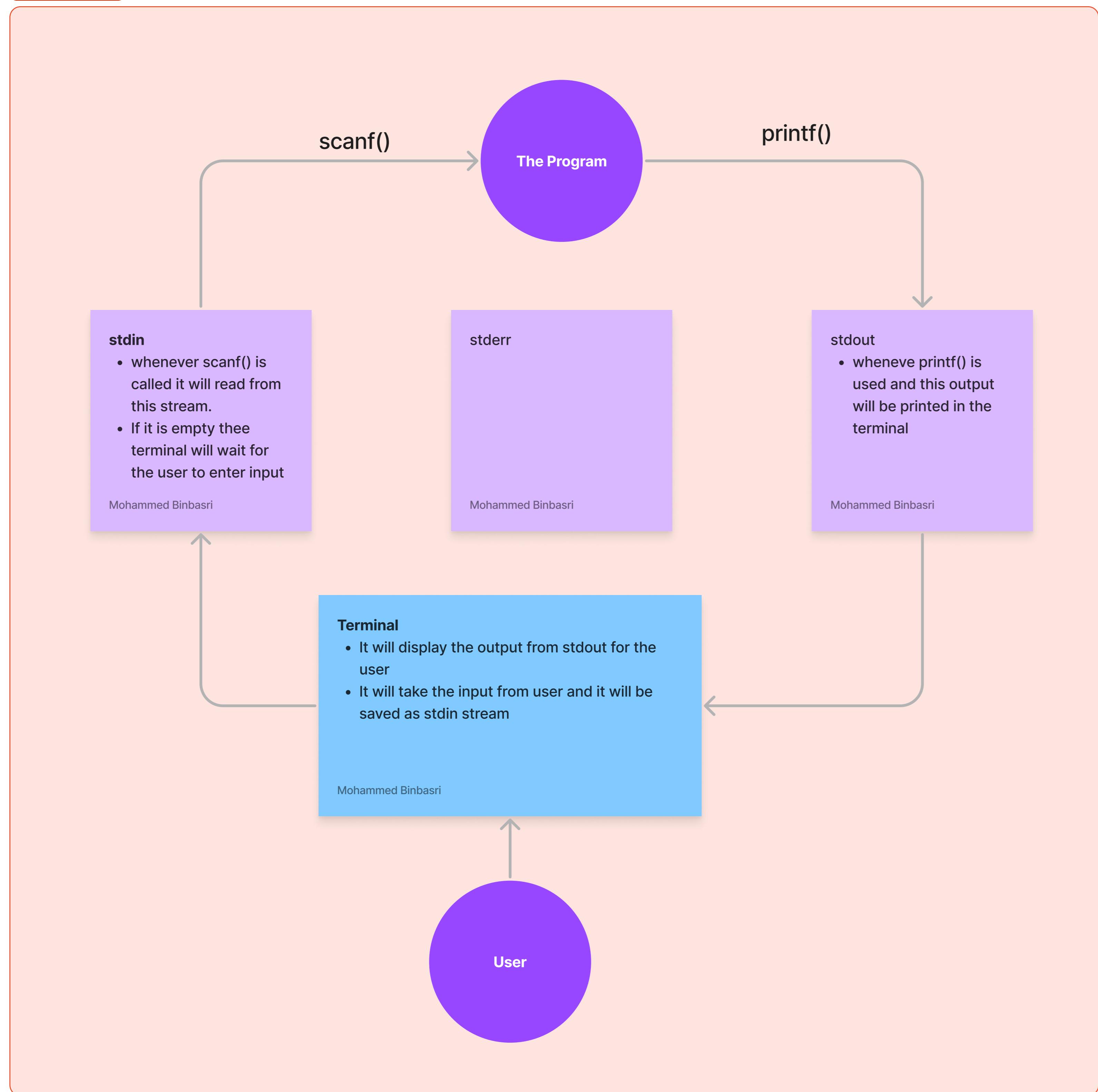


stdio Library



What is a stream?

- A stream is a source or destination of data that may be associated with a disk or other peripheral

stdio.h:

- The library supports text streams and binary streams, although on some systems, notably UNIX, these are identical.
- A text stream is a sequence of lines; each line has zero or more characters and is terminated by '\n'
- A binary stream is a sequence of unprocessed bytes that record internal data
- When a program begins execution, the three streams stdin, stdout, and stderr are already open.

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scanf()

- This function reads from the stdin stream and tries to find a match to format and assign it to the given pointers.

The Format String:

This Format string could consist of the following:

1. White-space characters(space, tab, newline...) these are characters that is dealt specially by scanf. (read but don't store except some conditions)
2. other characters except % these characters are not read by scanf but they are being considered for matching and finding the match, if the input doesn't match the given characters then it is a mis-match. (read but don't store and consider for matching patterns)
3. Format Specifications using % (read convert and store in the given pointers except when use *)

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stdin, stdout, stderr

- these are streams that opens at the time of running the program.
- these files or streams are used by different functions in <stdio.h> library like scanf, printf, strtok ... etc
- they are being used to manage the input and output of the system.
- the general functions are fprintf and fscanf where the stream is given as one of the arguments, so the streams can be stdin, stdout or it can be any other file that has been opened.
- the file need to be open to be considered as a stream that can be processed by stdio library functions.
- stdin, stdout and stderr are open automatically when running the program through the terminal.

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How scanf() deals with white-space?

- scanf consider stdin as a text stream by default so it will read till:
 - there is a new line terminates the end of reading or when it reaches end of file.
 - the given format was matched and assigned each given pointer so it will stop reading at that point.
 - there is an error or mismatch while reading so it will stop reading.

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Check the following link for more examples: https://github.com/Binbasri-in/DNA/tree/main/playing_with_stdio

for more info:

https://en.wikipedia.org/wiki/Standard_streams