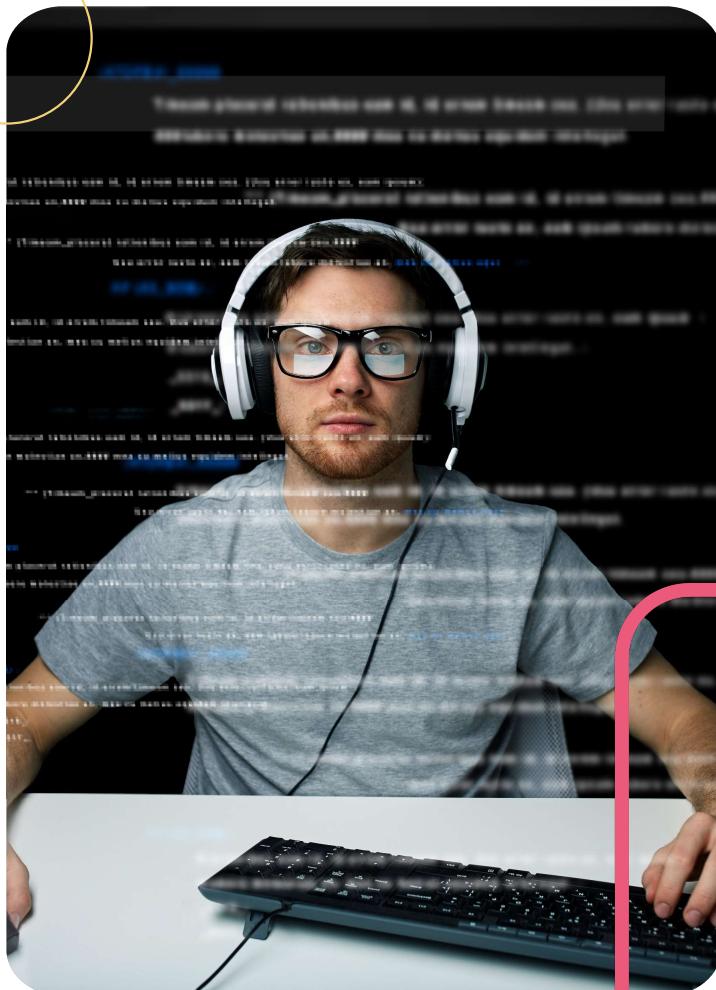


Diploma in

Computer Science

Basic Input and Output



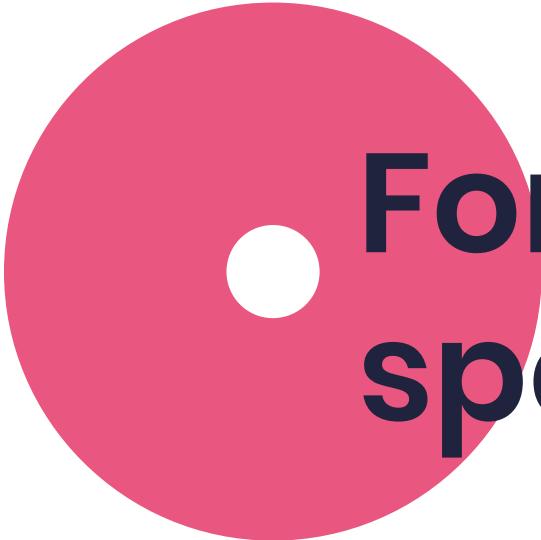
Discover how input and output is carried out

Understand the syntax of input and output functions

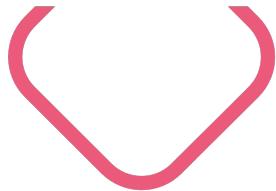
Develop skills in picking the right specifiers for a data type

Understand how to avoid errors when dealing with output

Objectives



Format specifiers





Challenge >>

Ask for input from the user and perform a calculation.

Then display the result to the user.

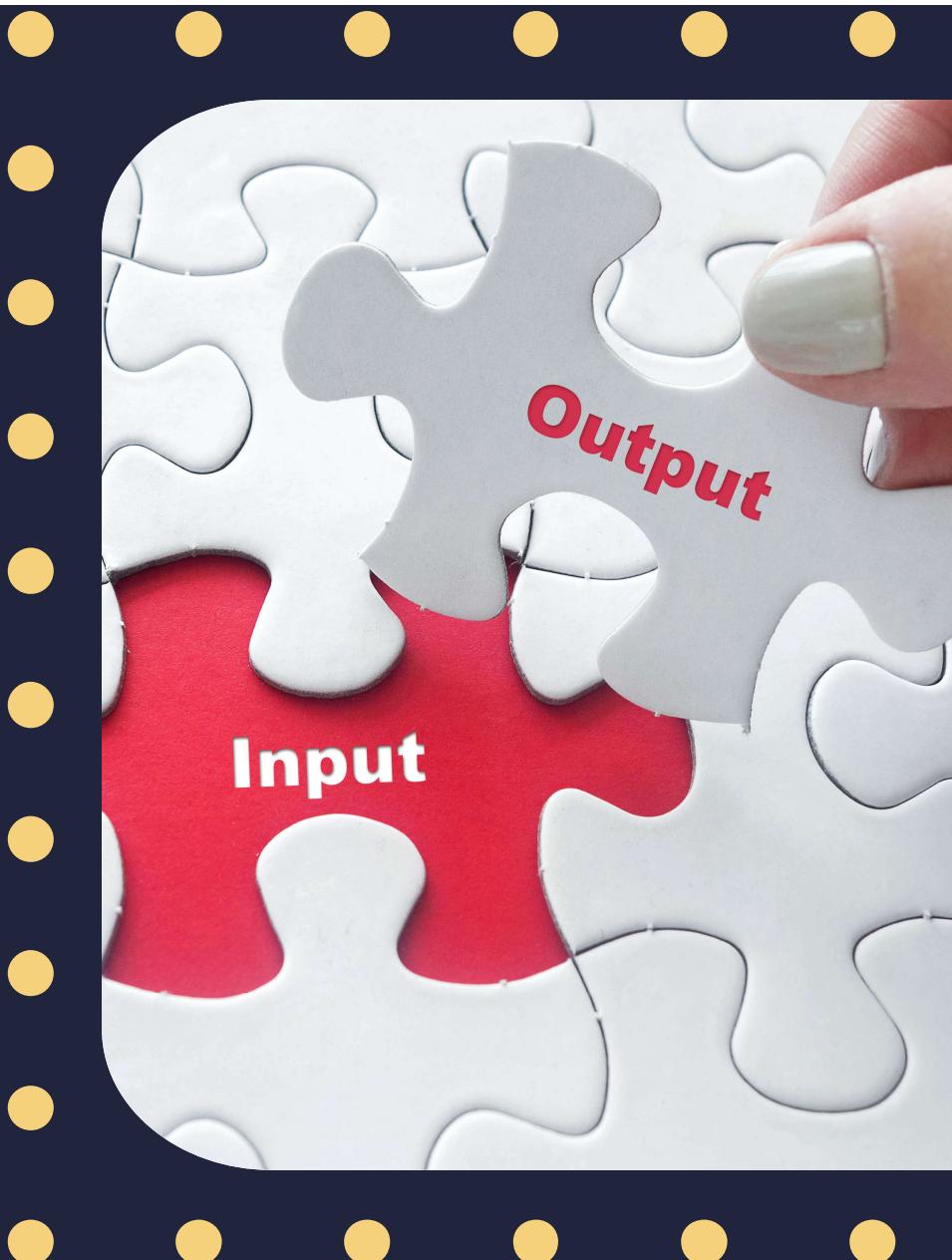


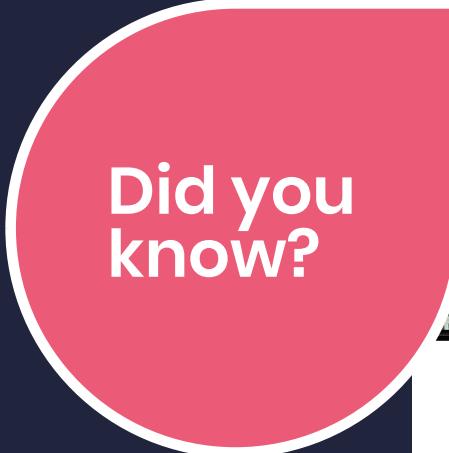
Input and output functions

- *getchar* and *putchar* transfer single characters
- *puts* displays strings
- *scanf* and *print* used to transfer single characters, numerical values, and strings

Input and output functions

- `scanf(specifier, “string/variable”)` for input
- `printf(specifier, “string/variable”)` for ouput
- Place names of functions that return data types within expressions
- Input and output functionality needs to be included as header files (`stdio.h` and `conio.h`)





Did you
know?

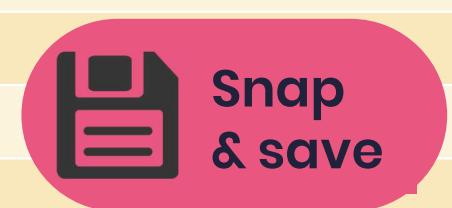


The C header file `conio.h` is used
mostly by MS-DOS compilers to
provide console input and output.



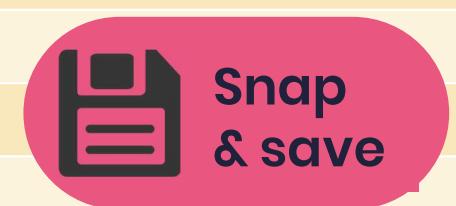
Specifier chart

Format specifier	Type
%c	Character
%d	Signed integer
%e or %E	Scientific notation of floats
%f	Float values
%g or %G	Works the same as %e or %E
%hi	Signed integer (short)
%hu	Unsigned Integer (short)
%i	integer
%l or %ld or %li	Long integer
%lf	Double integer
%Lf	Long double integer



Specifier chart

Format specifier	Type
<code>%lu</code>	Unsigned int or unsigned long
<code>%lli</code> or <code>%lld</code>	Long long
<code>%llu</code>	Unsigned long long
<code>%o</code>	Octal representation
<code>%p</code>	Pointer
<code>%s</code>	String
<code>%u</code>	Unsigned int
<code>%x</code> or <code>%X</code>	Hexadecimal representation
<code>%n</code>	Does not print anything
<code>%%</code>	Prints % character

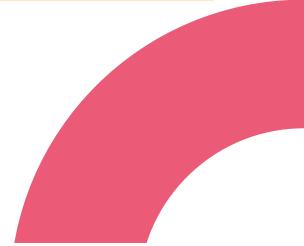




Formatting symbols



Escape sequence	Functions
\a	Text along with an alarm or beep to alert the user
\b	Inserts a backspace
\e	Escape character
\f	Form feed page break
\n	Inserts a new line
\r	Carriage return. Used to position the cursor to the beginning of the current line
\t	Inserts a horizontal tab to the right displayed text
\v	Inserts a vertical tab on the displayed text





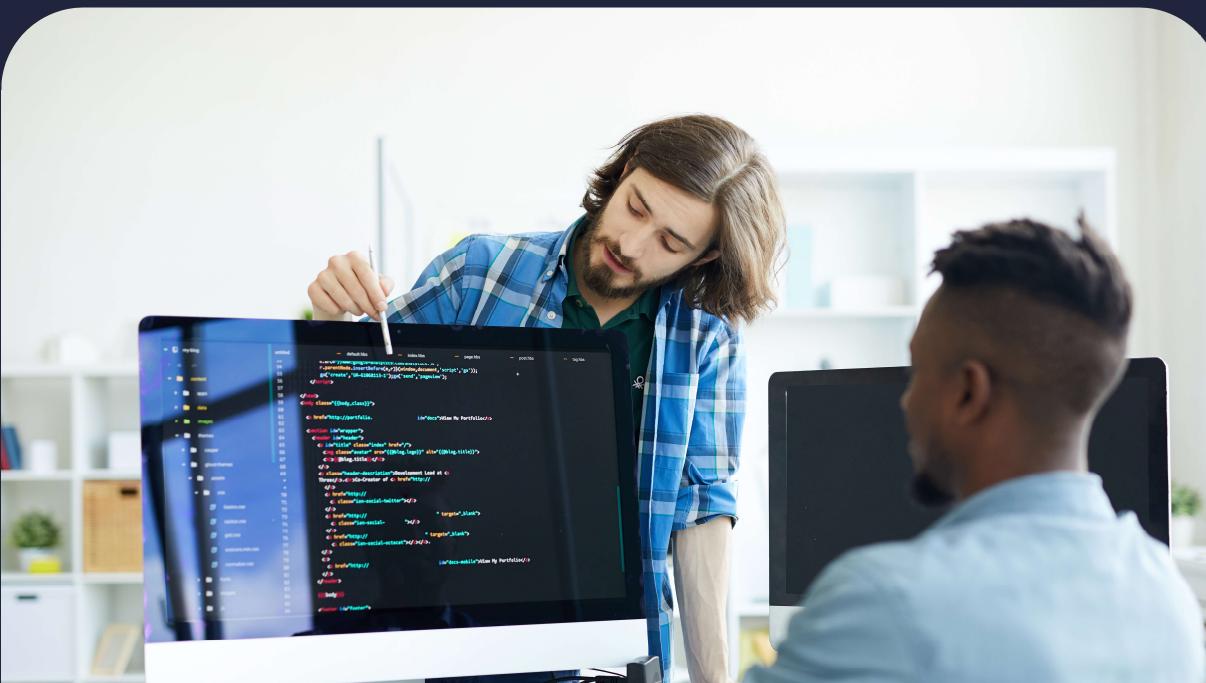
Formatting symbols

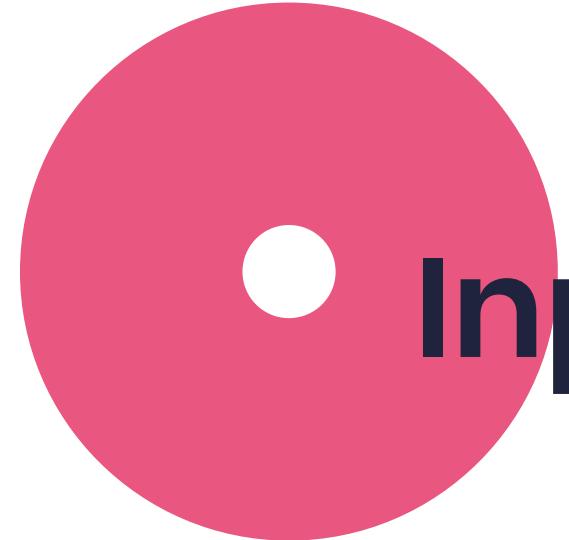


Escape sequence	Functions
\\	Display a backslash
\'	Display a single quote
\"	Display double quotes
\?	Display a question mark
\ooo	Octal number
\xhh	Hexadecimal number
\0	Null

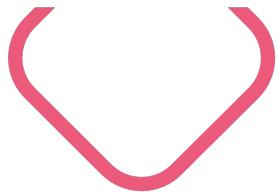


Ground rules



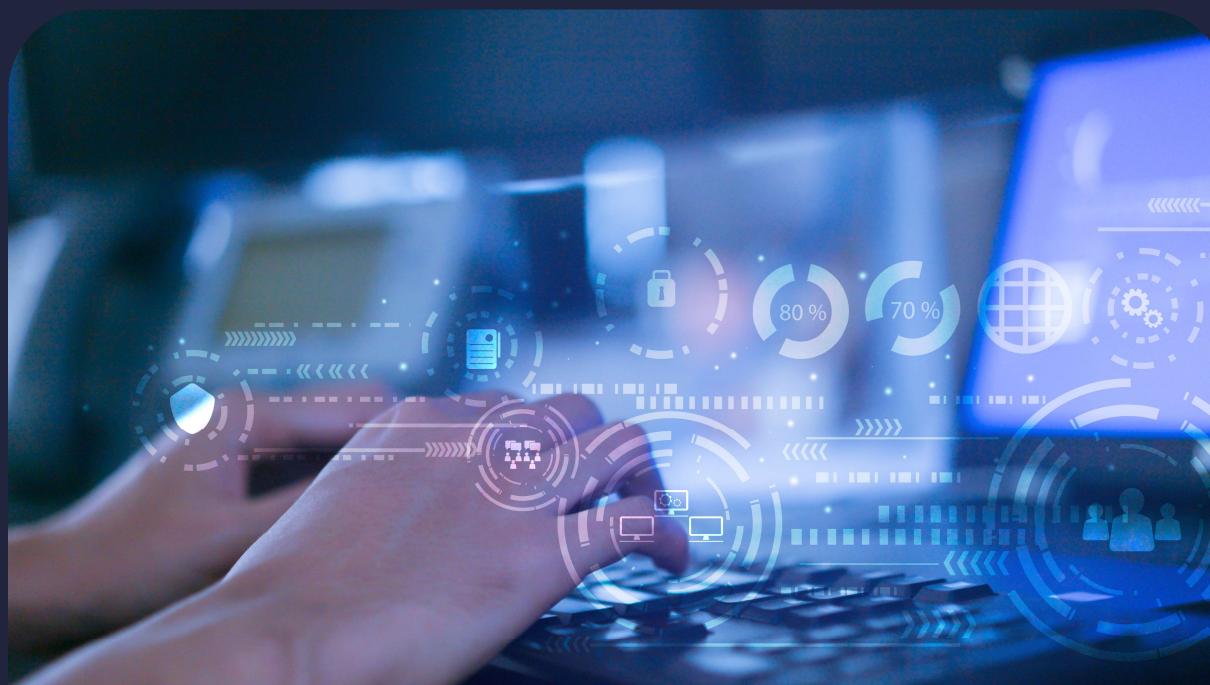


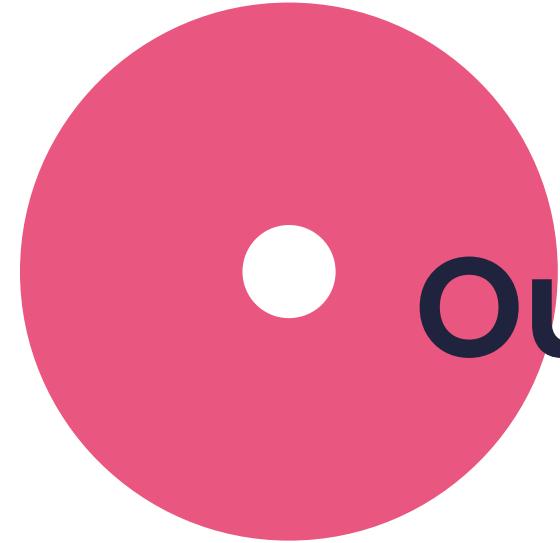
Input



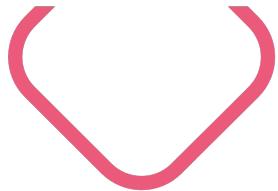


Input syntax: `scanf(" ");`





Output

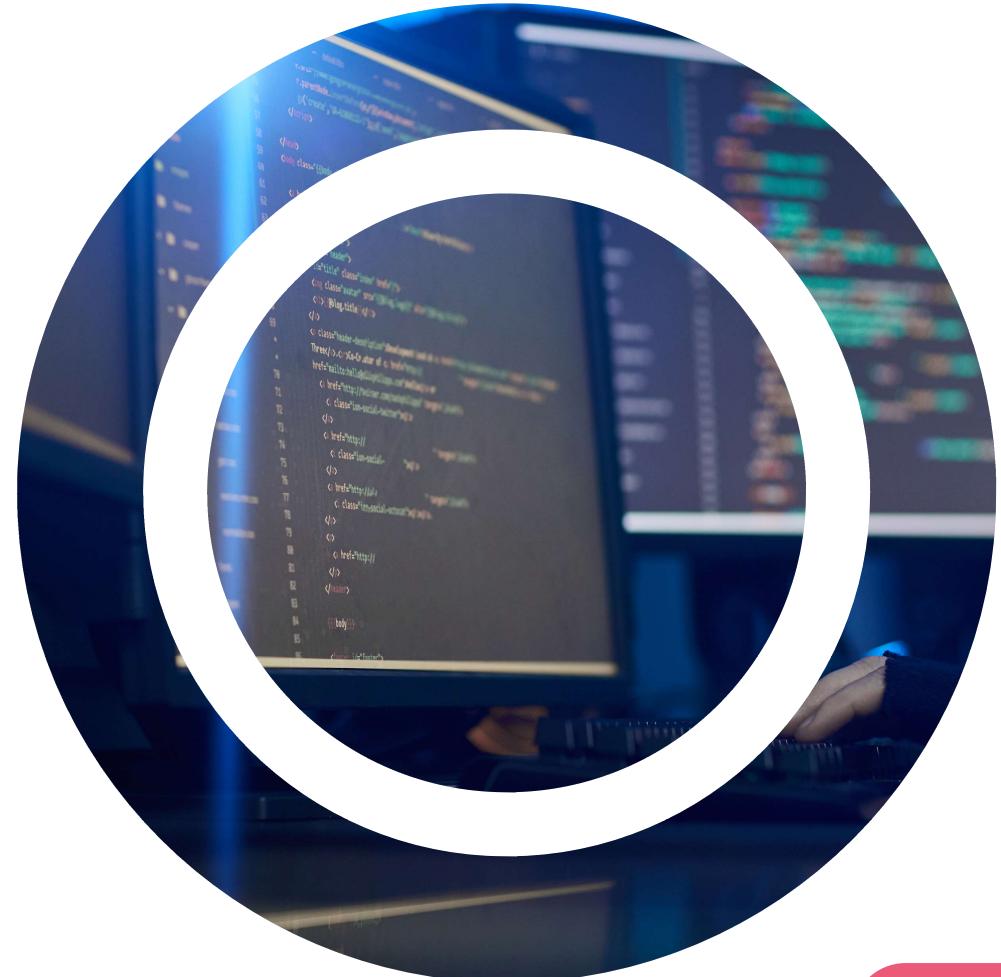


Output syntax

```
printf(" ");
```

Example: `printf("%d", a);`

Contents of *a* will be displayed instead of *%d*





Problem: A school tasks you with creating a module in a program that asks the user for the name and surname of a student, and their marks for Maths, English, and Science. The program must calculate the average mark for the student then display the student's details and their average mark vertically.

