Chapter 5 - Functions and Recursion Sometimes out program gets bugger in Size and its not possible for a programmer to track which piece of code is doing what function is a way to break our code into chund so that it is possible for a programmer to reuse them: What is a function? A function is a plack of code which performs particular task A function can be reused by the programmer in a given program any number of times.	
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What is a Function? A function is a block of Code which performs barticular task	•
A function is a block of Code which performs	
South cular Hask Will monune and John Silvi	2
A function can be reused by the programmer in a given program any number of times.	
a given program any number of times.	
Example and Syntax of a function miles missing	
This point continue the tract set of instanting	_
# include 25tdio.hz Dut detucas and desire	
Wilher of Lynnian is willed from him	
Void display (); => Function protype	
Superint Thirty of the Stars Block of	
int main () 13. Will and worked with all	
inta; in mien continuos mater de atodi	
display(); => Function (all	
returno; we represent to sixty a fine simple	
3 3 10 Louis Staine Araba material common book is	
Taken with his which hidden with med and a find that hood as	
Void display () & sure => function definition	
brintf (" Hi I am duplay");	
3. I won in so H to the Ma) haven I miam	_
	ســــــــــــــــــــــــــــــــــــ

Chapka Se Teach
Function prototype way to tell the compiler
Function prototype is a way to fell the Compiler function prototype is a way to fell the Compiler
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
in the program want the function returns
in the program that the function returns Here void indicates that the function
Along 1 and there was a second of the second
how I is a free many in the formation of the first
function call is a way to tell the compiler function call is a way to tell the time the
function call is a way to the time the
to execute the function body was
Note that the program execution starts from the
Note mot the program victorial instructions on
main function in the sequence the instructions are
written is notion una maryor moved
[Last 1.1. + al.] ald was
function definition and to make how admost one
This part contains the exact set of instructions
which are executed during the function (all
When a function is called from main () the
main function falls askep and gets temporarily suspended. During this time the control gold to the function being called. When the function body is done executing main () resumes.
suspended luring This time the control gols
to the function deling called. When the function
way is whe executing main () resumes.
Quick Quiz - White it
auick Quiz -> Write a program with three function
1, Good morning function which prints "Good Morning"
2, Good afternoon function which prints "Good Morning" 3, Good night function which prints "Good Afternoon"
37 Good night function which prints "Good Afternoon" Good night function which prints "Good night"
main () (1. 11 and might
main() Should call all of these in order 1 - 2-3
. In order 1 - 2-3

ELGS

	Important Points another in a rection of rection prised
0 10	
1	Execution of a C program starts from main()
	1 V
7	A C program can have more than one function
-	Every function gets called directly or indirectly from main()
THAT LA	Traine straine said to the said desire wine
→	There are two types of functions in C. Lets talk about them
	about them to types of functions in C. Les talk
	The transfer was to the transfer the transfer to
	Types of functions & data of the must for
No.	
7	Library functions -> Commonly required functions grouped together in a library file on disk
	together in a library file on disk more
27	User defined functions - These are the functions declared and defined by the user
+	allored and defined by the User
A.M.	Why use functions?
	VVIII USE FUNCTIONS!
17	To avoid rewriting the same logic again and again.
	10 covora same wing the same rogic vaguint and again.
22	To keep track of what we are doing in a program
	and a series of many and a series
3,	To test and check logic independently.
	2. inquiring the the actual violues possed to the
	The hon to make a cail. Ex 2.83
•	

-	
37	A function can return only one value at a time
4,	If the bassed variable is changed incit in
191	the function,
	colling the value in the
	If the passed variable is changed inside the function, the function call doesn't change the value in the calling function.
A	int Change (int a) 2 Q = 177; Yelurn 0; Misnomer Yelurn 0;
1	Q = 1775 In old => Misnomer and A
	return 0;
	1 2 Ex 2 x 3 Ex D
	Change is a function which change a 1 77 None
	change is a function which changes a to 77. Now If we call it from main like this
	y we want of come was the
	$\frac{1}{1+1} \left(\frac{1-1}{1+1} \right) \frac{\ln(n-1)}{\ln(n-1)} = \frac{1}{1+1} \left(\frac{1}{1+1} \right) \frac{\ln(n-1)}{\ln(n-1)}$
	$\frac{1}{1}$
	change (b); => The value of b remainy 22 printf("bis %d"; b); => prints bis 22"
	Drint (" b is "od is b) 300 which is in the
	will be maked mai => prints to is 22 hours
100	TOPHALOTE.
	This happens because a copy of bis passed to the change function
	change function
	Quick Quiz - Use the library functions to calculate
	the orea of a square with side a
Har	Hand the Whole
in the second	28 (1-1) (Arca?) = 1
	roop And:
	$\sim a \rightarrow (a)$
•	

	Recursion and de la la com call itself
	A function defined in C can call itself. This is called recursion also called recursive
1	FI function lettred in constitution
AUM DOA	This is called receives tothe collective and
shi i	A function calling I tself is also called receive
,	This is called recursion. A function calling itself is also called recursive function.
	Example of Recursion A very good example of recursion is factorial
	and example of recursion is factorial
	A very your example of various
	factorial $(n) = 1 \times 2 \times 3 \cdot \cdot \cdot \times n$
01	factorial (n) = 11x12x3xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
	RIVE AND THOUSE THE PARTY OF TH
	factorial (n) = factorial (n-1) x n
-	Taxing Cris
	Change (b): = => The white of he remain
4	Since we can write factorial of a number in terms of itself, we can program it using
	since we wan wave factorial of he purious
	terms of usely, we an program in using
	kecursion.
1	of bound 21 d to Judy of Joseph Ausgans and
	int factorial (int x) & normal annual
	int fis
the	duick duick dus - LAS ha (1 == x 1/140 == m) Ji
B. A.L.V. A.	return 1: => A brogram to
	else calculate factorial
	f = 2 * factoral (2-1); Using recursion
	+= L+ furware (h-1)) using reconstruction
	10 h 4 C.
	return f;
	7
	}
Sheat -	

Annah An		
	How does it work?	
	factorial (5)	
	5 X factorial (4)	
	5 × 4 × factorial (3)	
	5 × 4 × 3 × factoria	2 (2)
		achrial(1)
	Important Notes:	
7	Recursion is sometimes the most direct way to) /
27	The condition which doesn't call the function a further in a recursive function is called	1
3,	Sometimes due to a mistake made him	
	A recursive function can keep running without returning resulting in a memory crear.	<u>{</u>