Data Structures

Selection Statements

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Last Class Summary

- **Escape Sequence**
- **Operators**
- **Arithmetic Operators**
- **Operators Precedence**
- **Relational Operators**
- **Operators Precedence and Associativity**
- **Program**

Control Flow

- **Order in which a programs instructions/statements are executed**

Control Flow

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- **Some statements decide control flow**

Control Flow

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  - **Control Statements**

Control Flow

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- **Some statements decide control flow**
  - **Control Statements**
    - **Conditional/ Selection**
    - **Iterative/ Looping**
    - **Jump**

Control Flow

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- **Some statements decide control flow**
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      - **if, if..else, if..else if ladder, nested if, and switch**
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    - **break, continue, goto**

Control Flow

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- **Control Statements**
  - **Conditional/ Selection**
    - **if, if..else, if..else if ladder, nested if, and switch**
  - **Iterative/ Looping**
    - **do..while, while, and for**
  - **Jump**
    - **break, continue, goto**

Special Characters

( )	{ }	;	"	< >
#	,	\	_	$
&	+	-	=	*
/	%	:		

Keywords

main	void	int	float	char	struct
double	union	if	else	while	do
for	switch	break	continue	goto	

K1

Questions?

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Operators Precedence and Associativity

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Operators	Associativity
()	left to right
* / %	left to right
+ -	left to right
< <= > >=	left to right
== !=	left to right
=	right to left

K1

Simple if

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- **Syntax**

```
if (expression) {
    // Block of statements to execute if the expression is true
}
```

K1

Simple if

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- **Syntax**

```
if (expression) {
    // Block of statements to execute if the expression is true
}
```

- **Note:**
  - **If there is only one statement, you can ignore the {}**
  - **No semicolon in if statement. If semi-colon, it will terminate the if statement**

if else

- **Syntax**

```
if (expression) {
    // Block of statements to execute if the expression is true
} else {
    // Block of statements to execute if the expression is false
}
```

if else if ladder

- **Syntax**

```
if (expression1) {
    // Block of statements to execute if expression1 is true
} else if (expression2) {
    // Block of statements to execute if expression2 is true
} else if (expression3) {
    // Block of statements to execute if expression3 is true
} else {
    // Block of statements to execute if all expressions are false
}
```

Nested if

- **Syntax**

```
if (expression1) {
    // Code to execute if expression1 is true
    if (expression2) {
        // Code to execute if expression2 is also true
        if (expression3) {
            // Code to execute if expression3 is also true
        }
    }
}
```

switch

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- **Syntax**

```
switch (expression) {
    case value1:
        // Code to execute if expression equals value1
        break;
    case value2:
        // Code to execute if expression equals value2
        break;
    case value3:
        // Code to execute if expression equals value3
        break;
    // Add more cases as needed
    default:
        // Code to execute if none of the cases match
}
```

K1

switch

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- **Syntax**

```
switch (expression) {
    case value1:
        // Code to execute if expression equals value1
        break;
    case value2:
        // Code to execute if expression equals value2
        break;
    case value3:
        // Code to execute if expression equals value3
        break;
    // Add more cases as needed
    default:
        // Code to execute if none of the cases match
}
```

Keywords

main	void	int	float	char	struct
double	union	if	else	while	do
for	switch	break	continue	goto	

K1

Example: Odd or Even

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Where do you start?

Example: Odd or Even

Where do you start?

Algorithm: Find Odd or Even

Example: Odd or Even

Where do you start?

Algorithm: Find Odd or Even

Input:

Output:

Example: Odd or Even

Where do you start?

Algorithm: Find Odd or Even

Input: Number "num"

Output:

Example: Odd or Even

Where do you start?

Algorithm: Find Odd or Even

Input: Number "num"

Output: Print Odd or Even

Example: Odd or Even

Where do you start?

Algorithm: Find Odd or Even

Input: Number "num"

Output: Print Odd or Even

if num%2 is 0

Example: Odd or Even

Where do you start?

Algorithm: Find Odd or Even

Input: Number "num"

Output: Print Odd or Even

if num%2 is 0

Print Even

Example: Odd or Even

Where do you start?

Algorithm: Find Odd or Even

Input: Number "num"

Output: Print Odd or Even

if num%2 is 0

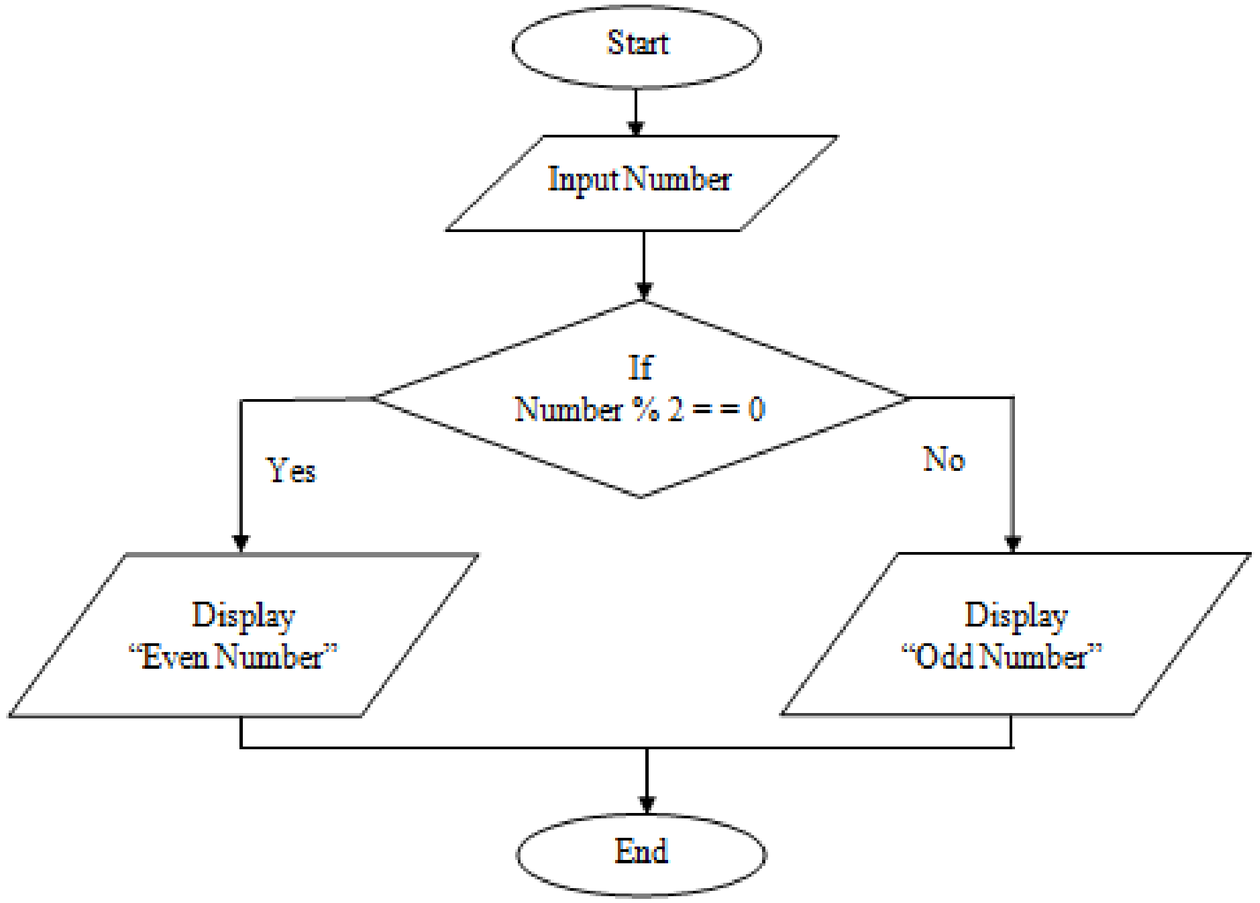
Print Even

Otherwise

Print Odd

Flow Chart

- **Find Odd or Even**



Program

- **Hands On**

K3

Questions?

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Today's Course Outcomes

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- **CO1 – Implement C programs from algorithms and flowcharts with error handling. – K3**
- **CO2 – Implement programming fundamentals, decision and looping statements – K3**
- **CO3 – Implement C programs with pointers, arrays, and strings – K3**
- **CO4 – Implement C programs with structures, union, file-handling concepts, and additional features – K3**
- **CO5 – Analyze, breakdown, and solve large computational problems using functions – K4**

K1

Summary

- **Control Flow**
- **Conditional/ Selection Statement**
- **Example: Odd or Even**
- **Flow Chart**
- **Program**
- **Today's Course Outcome**

References

SHIV NADAR UNIVERSITY CHENNAI

- **Kernighan, B.W and Ritchie, D. M, “The C Programming language”, 2nd edition, Pearson Education, 2006**

THANK YOU

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