

Data Structures



Looping Statements

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Last Class Summary

- **Assignment Operators**
- **Increment and Decrement Operator**
- **Precedence and Associativity**

Control Flow

- **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	

Looping/ Repetition/ Iteration

- **Execute a block of statements for some fixed repetitions.**
- **Control variable – Count number of repetitions**
 - **Increment/ Decrement**
- **Repetition stops when Control Variable reaches target repetitions**

for loop

- **Syntax**

```
for ( expression1; expression2; expression3 ) {  
    statement  
}
```

- **expression1 – Declaration and Initialization of the control variable**
- **expression 2 – Condition to check termination of control variable**
- **expression 3 – Increment/ Decrement the control variable**

while loop

- **Syntax**

```
expression1;  
while ( expression2 ) {  
    statement  
    expression3;  
}
```

do while loop

- **Syntax**

```
do {  
    statement  
} while ( condition );
```

break and continue

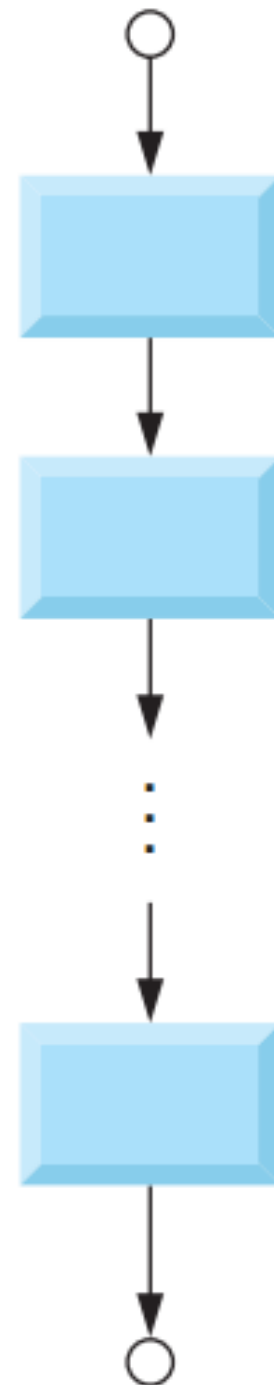
- **break**
 - **Exit immediately from loop and switch statements**
- **continue**
 - **Exit the current loop and go to the next iteration**

Keywords

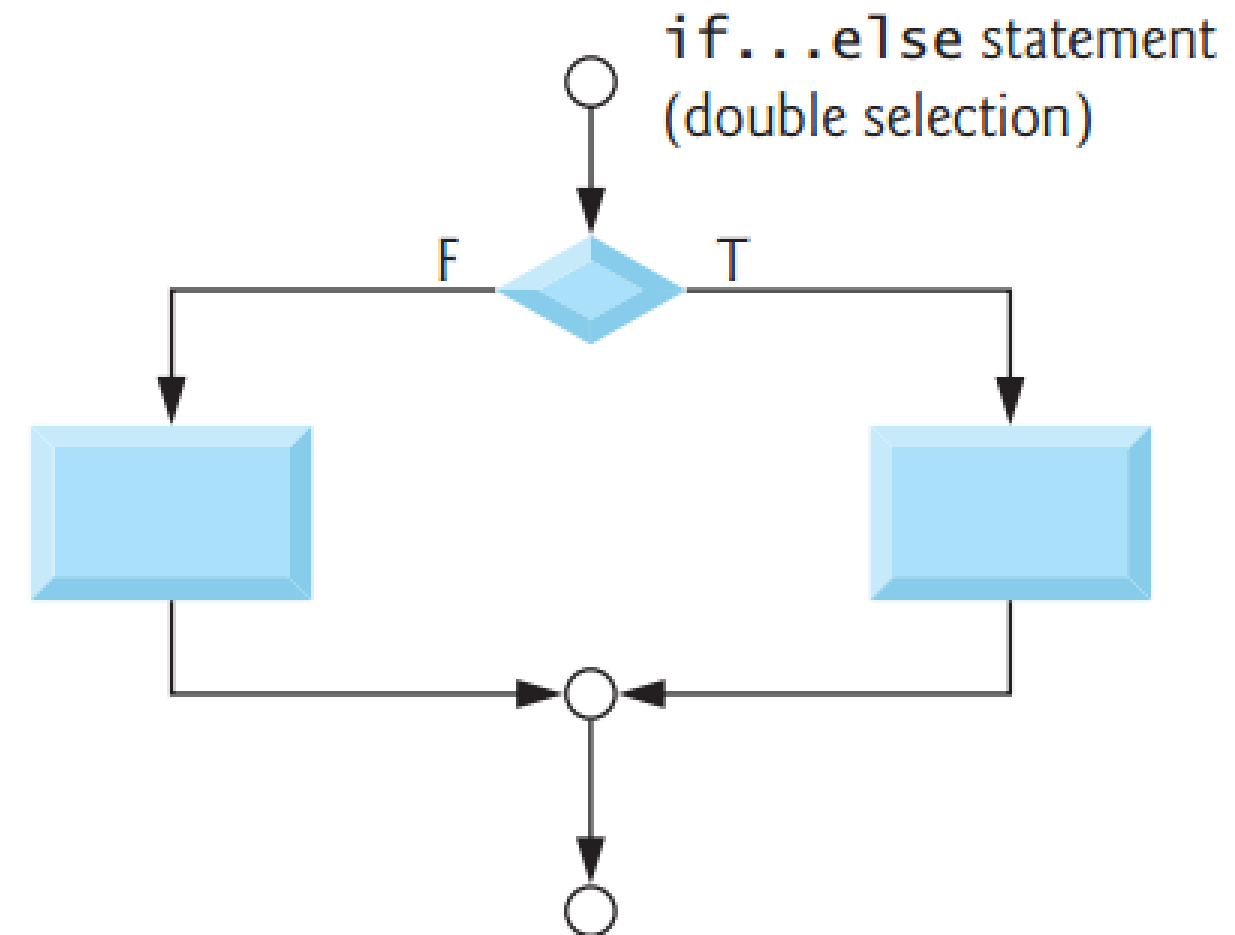
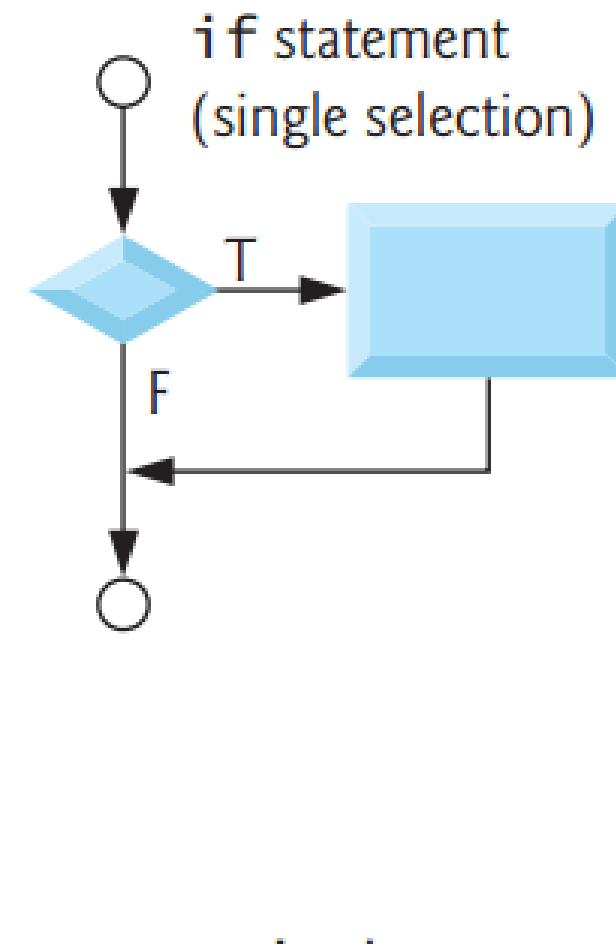
main	void	int	float	char	struct
double	union	if	else	while	do
for	switch	break	continue	goto	

Control Flow

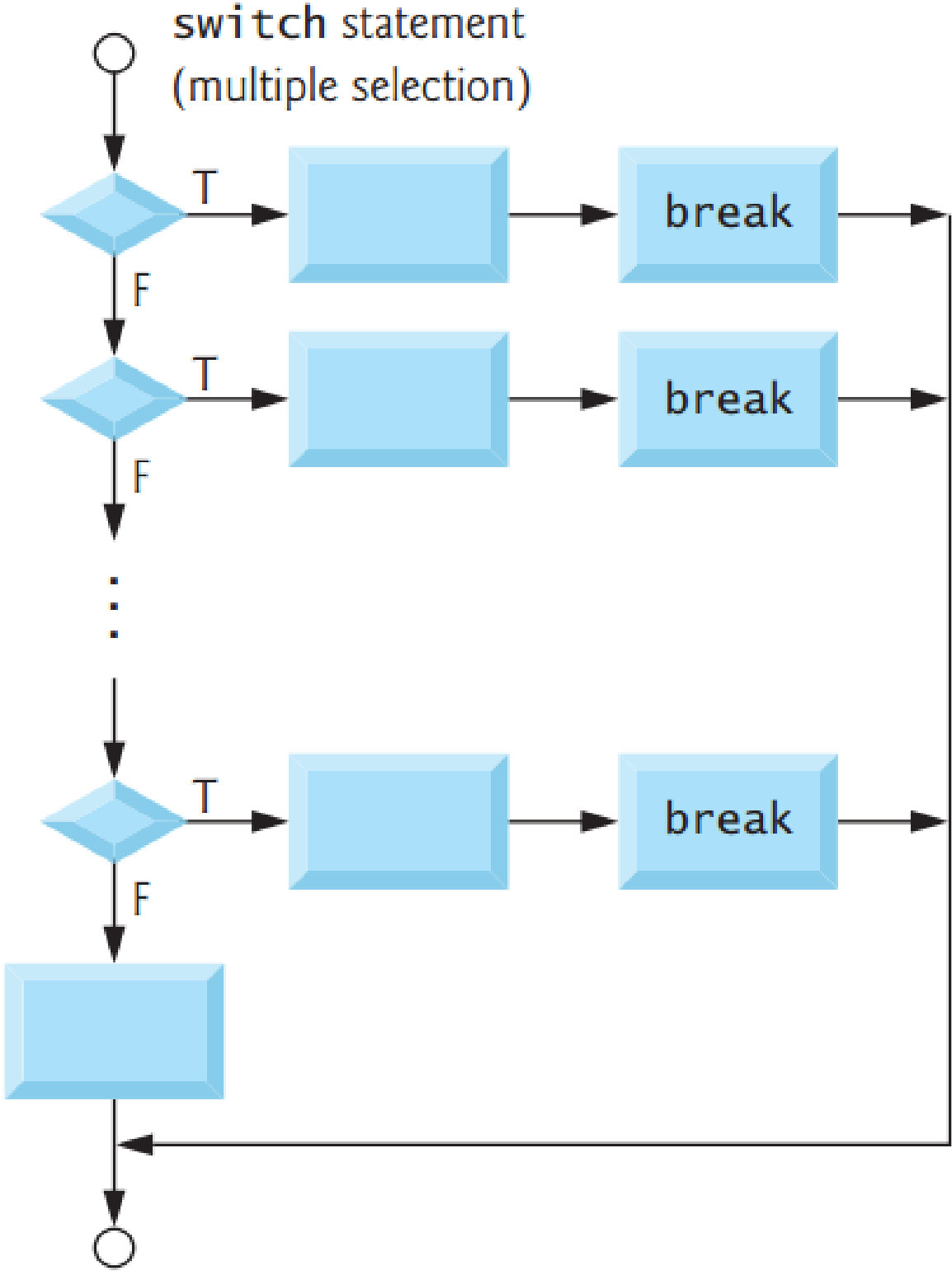
Sequence



Selection



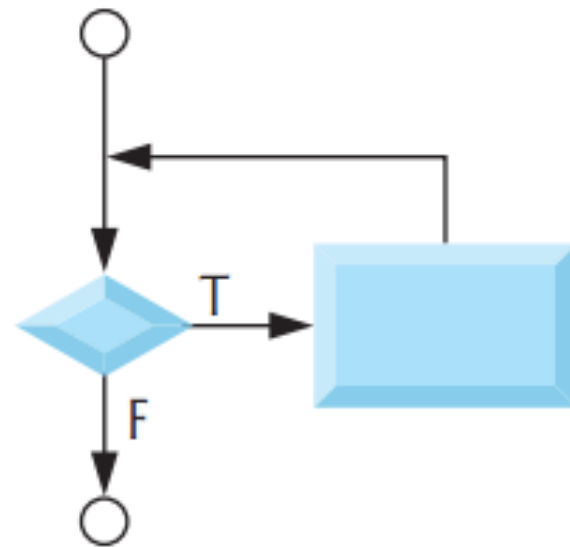
Control Flow



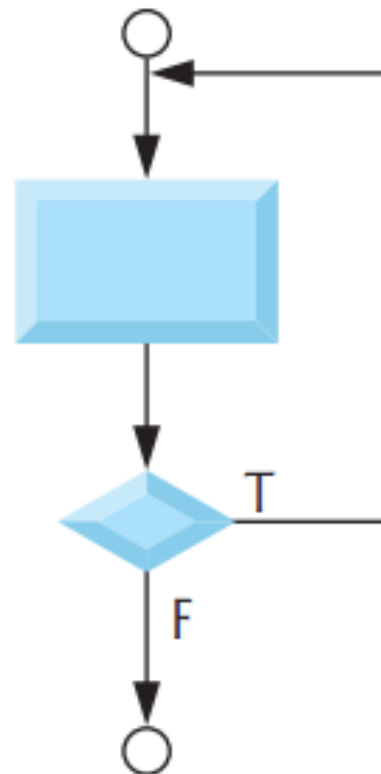
Control Flow

Repetition

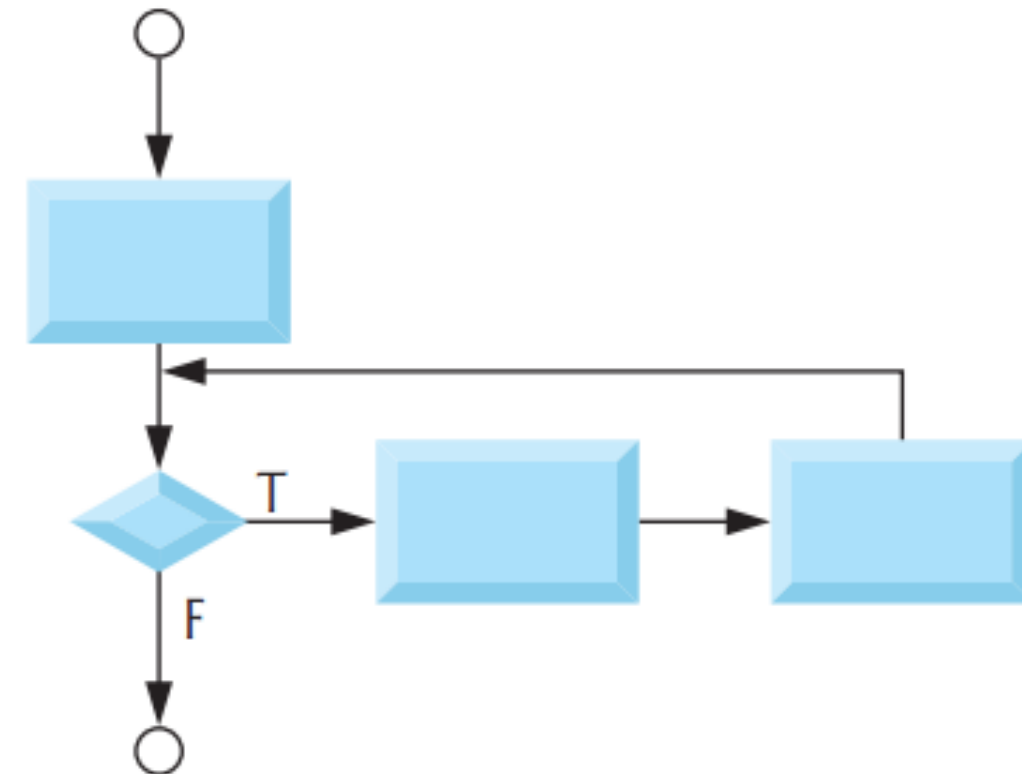
while statement



do...while statement



for statement



Programs

- **Print first n numbers**
- **Sum of n numbers**
- **Add numbers until user enters 0**
- **Sum of n numbers but terminate of negative numbers**
- **Sum of n numbers but skip negative numbers**

Questions?

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Today's Course Outcomes

- **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**

Summary

- **for loop**
- **while loop**
- **do while loop**
- **break and continue**
- **Programs**
- **Control Flow**
- **Today's Course Outcome**

- **Kernighan, B.W and Ritchie, D. M, “The C Programming language”, 2nd edition, Pearson Education, 2006**
- **Deitel, H.M. and Deitel, P.J., "C: How to program." 7th edition, Prentice-Hall, Inc., 2012.**

THANK YOU

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