



PLAN 396

Lecture 4

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Loop

- Executes a set of statements multiple times
- Number of execution depends on breaking expression
- { } are used to execute multiple statements
- Types
 - For
 - While
 - Do While



Loop

- Example:

```
void main(){  
    int n = 1;  
    printf("%d\n", n);  
    n++;  
    printf("%d\n", n);  
    n++;  
    printf("%d\n", n);  
    n++;  
    printf("%d\n", n);  
    n++;  
    printf("%d\n", n);  
    n++;  
}
```



while Loop

- Example:

```
void main(){  
    int n = 1;  
    while(n <=10){  
        printf("%d\n", n);  
        n++;  
    }  
}
```

- Basic Syntax:

```
while (expression)  
    statement;
```



for Loop

- `for (expr1; expr2; expr3)`
statement;

- Example:

```
void main(){  
    int n;  
    for(n=1; n <=10; n++){  
        printf("%d\n", n);  
    }  
}
```



do-while Loop

- The do-while, tests expression at the bottom after making each pass through the loop body
- the statements is always executed at least once.
- Syntax

do

statement;

while (*expression*);



do-while Loop

- Example:

```
void main(){  
    int n = 20;  
    do{  
        printf("%d\n", n);  
        n++;  
    }while(n <= 10);  
}
```



Break and Continue

- The break statement provides an early exit from loop
- A break causes the innermost enclosing loop or switch to be exited immediately.

```
void main(){
    int n = 1;
    while(n <=10){
        printf("%d\n", n);
        n++;
        if(n == 5)
            break;
    }
}
```




Break and Continue

- A continue causes skip of rest of the loop

```
void main(){  
    int n = 1;  
    while(n <=10){  
        if(n == 5)  
            continue;  
        printf("%d\n", n);  
        n++;  
    }  
}
```



Infinite Loop

- A loop becomes infinite when the breaking condition is never met
- The program will never terminate
- Example:

```
void main(){  
    int n;  
    for(n=1; n <=10; n--){  
        printf("%d\n", n);  
    }  
}
```



Infinite Loop

```
for(;; );
```

```
while(1);
```

```
do{ }while(1);
```

- How can you go out of an infinite loop?



Assignment

- Write a program named assignment5.c
- The program should take an Integer n as input from keyboard
- The program should use loop to show the following:
 - Get 6 input numbers from the user. The input must be >0
 - Show the sum of even numbers and odd numbers separately
 - Show the greater sum first
- Example:
 - Input = 1 2 3 4 5 6
 - Output
 - Sum of Even Number = 12
 - Sum of Odd Number = 9