

CS 111

while for repeat decisions, loops, blocks of code

Model of a while repeat decision

- Single statement:

```
while (BOOLEAN_EXPRESSION) STATEMENT;
```

- Multiple statements

```
while (BOOLEAN_EXPRESSION) {  
    STATEMENT(s);  
}
```

While loop with a counter

1. Set up counter
2. Check to see if counter is valid
3. If counter is valid, execute statements inside while loop
 - a. If counter is invalid, exit while loop
4. Update counter
5. Repeat steps 2, 3, 4

While loop to process digits of integer

1. Get number to process
2. Check to see if digits remain to process
3. If yes, process digit, then remove that digit
 - a. If no, exit while loop
4. Repeat steps 2 and 3.

Practice Problem

// Add up all numbers entered by user until the user enters a 0

Declare int variables for user input and sum

Receive input from user

Initialize sum to user's input

While input is not equal to 0

 Prompt user for another number

 Add new number to sum variable

Print sum to monitor

Practice Problem

```
// Find minimum value from set of positive inputs
Set an int variable sentinel to -1
Set a Boolean variable first to true
Declare variables for num and minimum
While another value has been read successfully
    If first is true
        Set the minimum to the value
        Set first to false
    Else if the value is less than the minimum
        Set the minimum to the value
Print minimum
```

7.3 Pseudocode

```
// Counts number of even and odd integer inputs from user
Declares integers for user input and even count and odd count
Read in value from user
While value is not 0
    While value is invalid
        Read new value from user
    If user input is even number, increment even count
    Otherwise increment odd count
    Read in new value from user
Print count of even numbers
Print count of odd numbers
```