Loops: While Loops

- `while` is similar to `if` but `while` repeatedly "loops back" and executes the `statement` until the `expression` is `false`.

- General format of a `while` loop:

  ```java
  setup statement
  while (expression) {
    body statement(s)
    update statement(s)
  }
  ```

Loops: For Loops

- `for` loops are a "condensed" version of a `while` loop.

- General format of a `for` loop:

  ```java
  for (setup; expression; update) {
    body statement(s)
  }
  ```
**For vs. While**

This while example

```c
i = 100; // setup
while (i >= 0) { // expression
    printf("%d\n", i);
    --i; // update
}
```

is equivalent to

```c
for (i = 100; i >= 0; --i) {
    printf("%d\n", i);
}
```

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**Read Input: Exercise**

Modify the code below to print out the average of the input. For example, if the input is 1, 2, 3, 2, then the program should print out 2.

```c
int main(void) {
    int n = 0;
    while (1) {
        n = read_int();
        if (n == READ_INT_FAIL) {
            break;
        }
    }
}
```

---

**Loop: Exercise**

```c
// draw_circle(size): draws a circle inside of a square
// with dimensions (size * 2 + 1)
// Requires: size >= 1
// Effects: produces output
```

There is a simple example of the output in "simple.expect"
Piazza Etiquette

Gold Questions

Do not ask questions regarding the implementation of functions within gold questions. Only ask questions which clarify your understanding of the assignment explanation.

Black Questions

You can ask questions regarding the implementation of functions within black questions. However, please do not post your code publicly on Piazza.

Piazza Mechanics

- Official Assignment Posts
- Searching for similar questions
- Making private posts