Nicole Luong

Week 3

While loops, Structs, Enums, Variable Names

Before we begin

Help Sessions

Lab check-ins

While Loops

A

```c
#include <stdio.h>

int main(void) {
    int i = 0;
    while (i < 32) {
        printf("%d\n", i);
        i = i + 2;
    }
    return 0;
}
```

B

```c
#include <stdio.h>

int main(void) {
    int i = 5;
    while (i >= 0) {
        printf("%d\n", i);
        i--;
    }
    return 0;
}
```

C

```c
#include <stdio.h>

int main(void) {
    int i = 0;
    int keep_going = 1;
    while (keep_going == 1) {
        if (i > 3) {
            keep_going = 0;
        }
        i++;
    }
    printf("%d\n", i);
    return 0;
}
```

D

```c
#include <stdio.h>

int main(void) {
    int i;
    while (i > 0) {
        printf("%d\n", i);
        i--;
    }
    return 0;
}
```

E

```c
#include <stdio.h>

int main(void) {
    int i = 0;
    int max = 32;
    while (i < max) {
        printf("%d\n", i);
        max = max + 2;
    }
    return 0;
}
```

F

```c
#include <stdio.h>

int main(void) {
    int i = 0;
    int keep_going = 0;
    while (keep_going == 1) {
        if (i > 3) {
            keep_going = 0;
        }
        i++;
    }
    printf("%d\n", i);
    return 0;
}
```

2D While loops

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2D While loops

Match the patterns to the code snippets

A

```
0XXX
X0XX
XX0X
XXX0
```

B

```
0X0X
0X0X
0X0X
0X0X
```

C

```
0X00
XXXX
0X00
0X00
```

D

```
XXXX
X00X
X00X
XXXX
```

1

```c
#include <stdio.h>

#define SIZE 4

int main(void) {
    int row = 0;
    while (row < SIZE) {
        int col = 0;
        while (col < SIZE) {
            if (col != 1 && row != 1) {
                printf("O");
            } else {
                printf("X");

            }
            col++;
        }
        row++;
        printf("\n");
    }
    return 0;
}
```

2

```c
#include <stdio.h>

#define SIZE 4

int main(void) {
    int row = 0;
    while (row < SIZE) {
        int col = 0;
        while (col < SIZE) {
            if (row == col) {
                printf("O");
            } else {
                printf("X");

            }
            col++;
        }
        row++;
        printf("\n");
    }
    return 0;
}
```

3

```c
#include <stdio.h>

#define SIZE 4

int main(void) {
    int row = 0;
    while (row < SIZE) {
        printf("X");
        int col = 1;
        while (col < SIZE - 1) {
            if (row == 0 || row == SIZE - 1) {
                printf("X");
            } else {
                printf("O");
            }
            col++;
        }
        printf("X");
        row++;
        printf("\n");
    }
    return 0;
}
```

4

```c
#include <stdio.h>

#define SIZE 4

int main(void) {
    int row = 0;
    while (row < SIZE) {
        int col = 0;
        while (col < SIZE) {
            if (col % 2 == 0) {
                printf("O");
            } else {
                printf("X");

            }
            col++;
        }
        row++;
        printf("\n");
    }
    return 0;
}
```

Scanning in Until Ctrl-d

While Loops

Write the loop conditions for each program

A

Enter a series of integers until you reach a negative number. Then, print out the sum of the positive integers.

B

Enter characters until the user presses 'q'. Then, display the count of characters entered.

C

Scan for numbers until end of input. As each number is scanned in, print the even ones.

D

Scan for integers keeping a cumulative sum, until the sum of entered integers reaches or exceeds the target sum provided by the user. Print the final sum.

Structs and Enums

Lab Time!