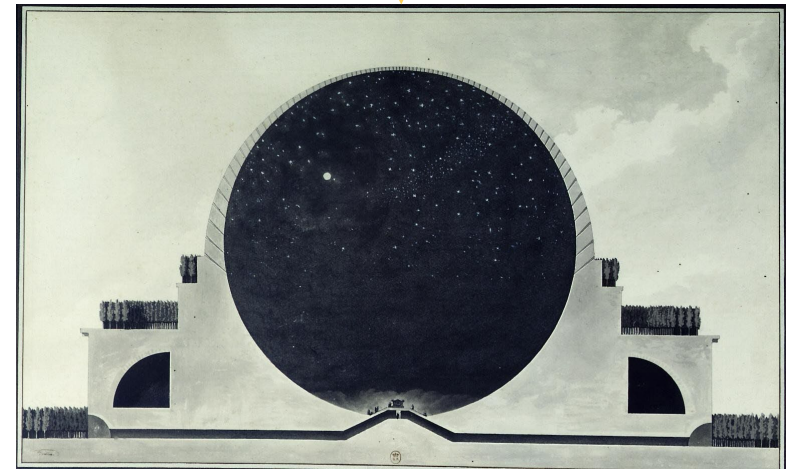
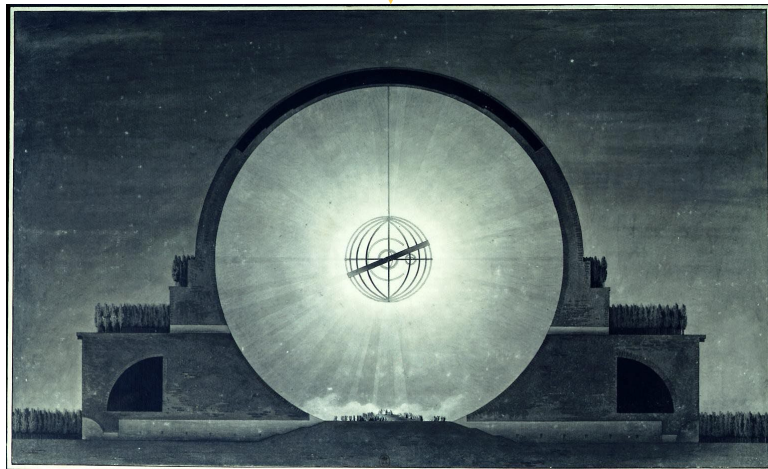
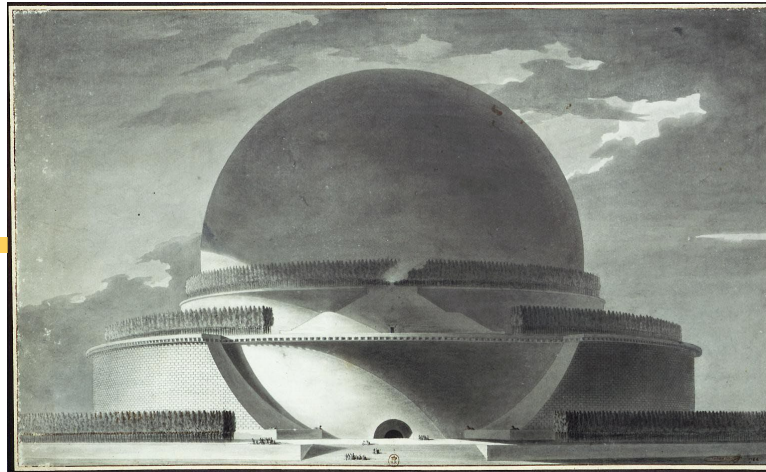




: Cenotaph for Newton



COMP1511 Week 3!

T14A: 2pm – 5pm

Tutors: Me + Vivian Zheng



My GitHub:



<https://shorturl.at/zMTX5>



EdStem Lessons:



<https://shorturl.at/krtG9>



The Agenda

While Loops (15 mins)

In 4 groups, let's tackle some **while** loops...

The Code

```
34 void a(void) {
35     int i = 5;
36     while (i > 0) {
37         printf("%d\n", i);
38         i--;
39     }
40 }
```

2D While Loops (15 mins)

In 4 groups still, let's tackle some 2D loops...

```
void draw() {
    int row = 0;
    while (row < 1000) {
        int col = 0;
        while (col < 1000) {
            if (col % 1000 == 0) {
                printf("\n");
            }
            // ...
            col++;
        }
        row++;
    }
}
```

ASSUME:
#define SIZE 4

Structs and Enums (15 mins)

Preliminary discussion: **struct** vs **enum**

```
6 struct person {
7     int shoe_size;
8     double height;
9     char first_name_initial;
10 };
11
12 enum opal_card_type { ADULT, STUDENT, CONCESSION };
```

Variable Names (15 mins)

Let's Kahoot!

Kahoot!



In 4 groups, let's tackle some **while** loops...

The Code

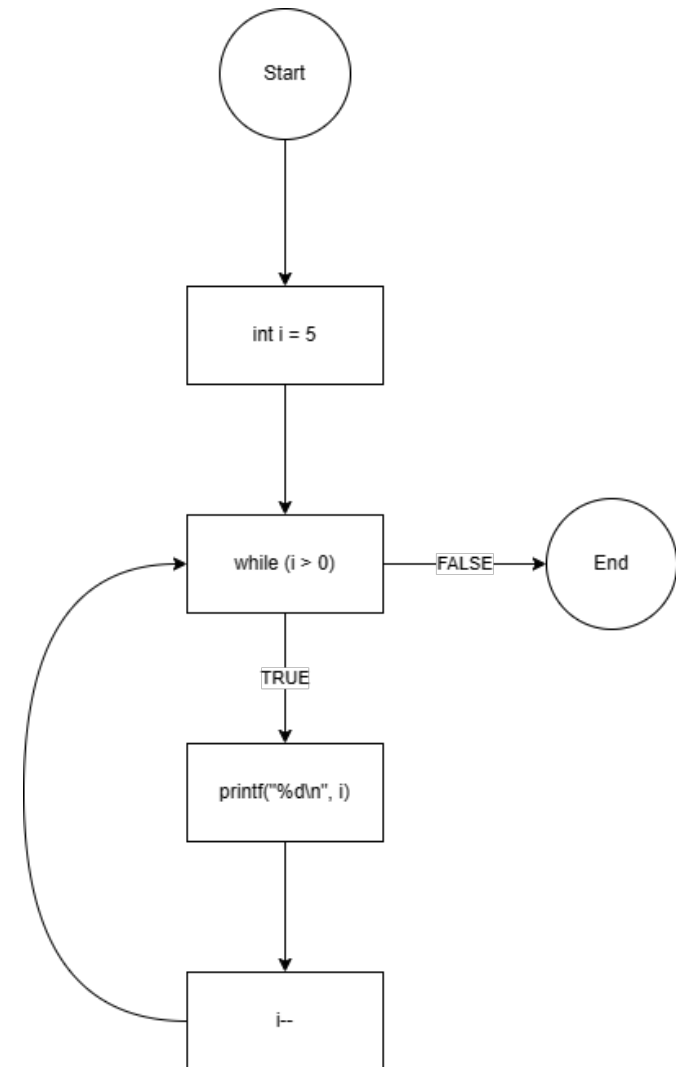
```
34 void a(void) {  
35     int i = 5;  
36     while (i > 0) {  
37         printf("%d\n", i);  
38         i--;  
39     }  
40 }
```



In 7 groups, let's tackle some **while** loops...

The Code

```
34 void a(void) {  
35     int i = 5;  
36     while (i > 0) {  
37         printf("%d\n", i);  
38         i--;  
39     }  
40 }
```





In 7 groups, let's tackle some **while** loops...

| | |
|---|---|
| A <pre>void a(void) { int i = 5; while (i > 0) { printf("%d\n", i); i--; } }</pre> | B <pre>void b(void) { int i = 1; while (i < 32) { printf("%d\n", i); i = i + i; } }</pre> |
| C <pre>void c(void) { int i = 0; while (i < 32) { printf("%d\n", i); i = i + 2; } }</pre> | D <pre>void d(void) { int i = 5; while (i >= 0) { printf("%d\n", i); i--; } }</pre> |
| E <pre>void e(void) { int i = 0; int keep_going = 1; while (keep_going == 1) { if (i > 3) { keep_going = 0; } i++; } printf("%d\n", i); }</pre> | F <pre>void f(void) { int i; while (i > 0) { printf("%d\n", i); i--; } }</pre> |
| G <pre>void g(void) { int i = 0; int max = 32; while (i < max) { printf("%d\n", i); max = max + 2; } }</pre> | H <pre>void h(void) { int i = 0; int keep_going = 0; while (keep_going == 1) { if (i > 3) { keep_going = 0; } i++; } printf("%d\n", i); }</pre> |

In 4 groups still, let's tackle some 2D loops...

```
void a(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");
    }
}
```

```
void b(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");
    }
}
```

```
void c(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");
    }
}
```

```
void d(void) {
    int row = 0;
    while (row < SIZE) {
        printf("X");
        int col = 1;
        while (col < 3) {
            if (row == 0 || row == 3) {
                printf("X");
            } else {
                printf("O");
            }

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

ASSUME:
#define SIZE 4

Preliminary discussion: **struct** vs **enum**

```
6    struct person {  
7        int shoe_size;  
8        double height;  
9        char first_name_initial;  
10   };  
11  
12   enum opal_card_type { ADULT, STUDENT, CONCESSION };
```

What differences can you see?

```
6   struct person {  
7       int shoe_size;  
8       double height;  
9       char first_name_initial;  
10  };  
11  
12  enum opal_card_type { ADULT, STUDENT, CONCESSION };
```

struct vs. enum



Okay, but what about **enum** vs **#define**?

```
12     enum opal_card_type { ADULT, STUDENT, CONCESSION };
13
14     #define ADULT 0
15     #define STUDENT 1
16     #define CONCESSION 2
```

enum vs. #define



Let's Kahoot!

Kahoot!