



CS2263

Assignment 1

January 26th, 2024

UNB Fredericton

Class Code: Cs2263

Document: Assignment 1

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Due Date: January 29th, 2024

Exercise 1

Source Code:

```
#include <stdio.h>

void printArr(char a[], int n){
    //just a for loop to go through char array
    for(int i = 0; i < (n-1); i++){
        putchar(a[i]);
    }
    //new line after complete
    putchar('\n');
}

int main(){
    char message[] = "Hello World";
    char message2[] = "Will Ross";
    char message3[] = "3734692";
    char message4[] = "January 26th, 2024";

    //test 1
    int arrayLength = sizeof(message)/ sizeof(message[0]);
    //printArr(message, arrayLength);

    //test 2
    int array2Length = sizeof(message2)/ sizeof(message2[0]);
    //printArr(message2, array2Length);

    //test 3
    int array3Length = sizeof(message3)/ sizeof(message3[0]);
    //printArr(message3, array3Length);

    //test 4
    int array4Length = sizeof(message4)/ sizeof(message4[0]);
    printArr(message4, array4Length);
    return 0;
}
```

Output:

Test 1:

Hello World

Test 2:

Will Ross

Test 3:

3734692

Test 4:

January 26th, 2024

Exercise 2

Source Code:

```
#include <stdio.h>

void printReversed(int n){
    if(n <= 0){
        //new line after complete
        putchar('\n');
    }
    else{
        //prints the value of mod n which will be the last digit
        putchar('0' + n % 10);

        //calls method again until n is empty
        printReversed(n /= 10);
    }
}

void printArr(char a[], int n){
    //just a for loop to go through char array
    for(int i = 0; i < (n-1); i++){
        putchar(a[i]);
    }
    //new line after complete
    putchar('\n');
}

int main(){

    int number = 1;

    int number1 = 100021;

    int number2 = 1263;

    int number3 = 2263;
```

```
//test 1
```

```
//printReversed(number);
```

```
//test 2
```

```
//printReversed(number1);
```

```
//test 3
```

```
//printReversed(number2);
```

```
//test 4
```

```
//printReversed(number3);
```

```
return 0;
```

}Output:

Test 1:

1

Test 2:

120001

Test 3:

3621

Test 4:

3622

Exercise 3

Source Code:

```
#include <stdio.h>

#include <ctype.h>

void printArr(char a[], int n){
    //just a for loop to go through char array
    for(int i = 0; i < (n-1); i++){
        putchar(a[i]);
    }

    //new line after complete
    putchar('\n');
}

void printReversed(int n){
    if(n <= 0){
        //new line after complete
        putchar('\n');
    }
    else{
        //prints the value of mod n which will be the last digit
        putchar('0' + n % 10);

        //calls method again until n is empty
        printReversed(n /= 10);
    }
}

int convertInt(char a[], int n){

    //int value to return
    int toReturn = 0;
```

```

//to get num values
for(int i = n - 1; i >= 0 && isdigit(a[i]); i--){

    toReturn = (a[i] - '0') + 10 * toReturn;
}
return toReturn;
}

int printInt(int num) {
    //method to reverse integers to get them read to be printed
    int reversed = 0;
    while (num != 0) {
        int curr = num % 10;
        reversed = reversed * 10 + curr;
        num /= 10;
    }
    printReversed(reversed);
}

int main(){
    char one[] = "\nTest 1:";
    char two[] = "\nTest 2:";
    char three[] = "\nTest 3:";
    char four[] = "\nTest 4:";
    int testSize = 10;

    // Test 1
    printArr(one, testSize);

    char a[] = {'3','2','1'};
    int arrayIntLength = sizeof(a)/ sizeof(a[0]);
    printInt(convertInt(a, arrayIntLength));
}

```

```
// Test 2
```

```
printArr(two, testSize);
```

```
char a1[] = {'1', '2', '3'};
```

```
int len1 = sizeof(a1) / sizeof(a1[0]);
```

```
println(convertInt(a1, len1));
```

```
// Test 3
```

```
printArr(three, testSize);
```

```
char a2[] = {'5'};
```

```
int len2 = sizeof(a2) / sizeof(a2[0]);
```

```
println(convertInt(a2, len2));
```

```
// Test 4
```

```
printArr(four, testSize);
```

```
char a3[] = {'0', '0', '7'};
```

```
int len3 = sizeof(a3) / sizeof(a3[0]);
```

```
println(convertInt(a3, len3));
```

```
return 0;
```

```
}
```


Output

Test 1:

123

Test 2:

321

Test 3:

5

Test 4:

7

Exercise 4

Source Code:

```
#include <stdio.h>

#include <ctype.h>

void printArr(char a[], int n){
    //just a for loop to go through char array
    for(int i = 0; i < (n-1); i++){
        putchar(a[i]);
    }

    //new line after complete
    putchar('\n');
}

void printReversed(int n){
    if(n <= 0){
        //new line after complete
        putchar('\n');
    }
    else{
        //prints the value of mod n which will be the last digit
        putchar('0' + n % 10);

        //calls method again until n is empty
        printReversed(n /= 10);
    }
}

int convertInt(char a[], int n){

    //int value to return
    int toReturn = 0;
```

```

//to get num values
for(int i = n - 1; i >= 0 && isdigit(a[i]); i--){

    toReturn = (a[i] - '0') + 10 * toReturn;
}
return toReturn;
}

int printInt(int num) {
    //method to reverse integers to get them read to be printed
    int reversed = 0;
    while (num != 0) {
        int curr = num % 10;
        reversed = reversed * 10 + curr;
        num /= 10;
    }
    printReversed(reversed);
}

int addReversedInt(char a[], int n, char b[], int m){
    //runs both inputs through convert int and added the sum
    int num1 = convertInt(a, n);
    int num2 = convertInt(b, m);
    return (num1 + num2);
}

int main(){
    char one[] = "\nTest 1:";
    char two[] = "\nTest 2:";
    char three[] = "\nTest 3:";
    char four[] = "\nTest 4:";
    int testSize = 10;

```

```
// Test 1
```

```
printArr(one, testSize);
```

```
char a[] = {'3','2','1'};
```

```
int arrayALength = sizeof(a)/ sizeof(a[0]);
```

```
char b[] = {'6','5','4'};
```

```
int arrayBLength = sizeof(b)/ sizeof(b[0]);
```

```
println(addReversedInt(a, arrayALength, b, arrayBLength));
```

```
// Test 2
```

```
printArr(two, testSize);
```

```
char a1[] = {'3','5','3'};
```

```
int arrayA1Length = sizeof(a1)/ sizeof(a1[0]);
```

```
char b1[] = {'0','1','9'};
```

```
int arrayB1Length = sizeof(b1)/ sizeof(b1[0]);
```

```
println(addReversedInt(a1, arrayA1Length, b1, arrayB1Length));
```

```
// Test 3
```

```
printArr(three, testSize);
```

```
char a2[] = {'3','3','3'};
```

```
int arrayA2Length = sizeof(a2)/ sizeof(a2[0]);
```

```
char b2[] = {'6','8','1'};
```

```
int arrayB2Length = sizeof(b2)/ sizeof(b2[0]);
```

```
println(addReversedInt(a2, arrayA2Length, b2, arrayB2Length));
```

```
// Test 4
```

```
printArr(four, testSize);
```

```
char a3[] = {'1','2','1','2'};
int arrayA3Length = sizeof(a3)/ sizeof(a3[0]);
char b3[] = {'6','5','4'};
int arrayB3Length = sizeof(b3)/ sizeof(b3[0]);
printfInt(addReversedInt(a3, arrayA3Length, b3, arrayB3Length));

return 0;
}
```

Output:

Test 1:

579

Test 2:

1263

Test 3:

519

Test 4:

2577

Exercise 5

Source Code:

```
#include <stdio.h>

#include <ctype.h>

#include <string.h>


void printArr(char a[], int n){

    //just a for loop to go through char array
    for(int i = 0; i < (n-1); i++){

        putchar(a[i]);

    }


    //new line after complete
    putchar('\n');
}

void printReversed(int n){

    if(n <= 0){

        //new line after complete
        putchar('\n');

    }

    else{

        //prints the value of mod n which will be the last digit
        putchar('0' + n % 10);


        //calls method again until n is empty
        printReversed(n /= 10);

    }

}

int convertInt(char a[], int n){
```

```

//int value to return
int toReturn = 0;

//to get num values
for(int i = (n-1); i >= 0 && isdigit(a[i]); i--){

    toReturn = (a[i] - '0') + 10 * toReturn;
}
return toReturn;
}

int addReversedInt(char a[], int n, char b[], int m){
    //gets the sum of the char integers
    int num1 = convertInt(a, n);
    int num2 = convertInt(b, m);
    return num1 + num2;
}

void inputRead(char input[]){
    char curr;
    int i = 0;

    //reads in values until there is a newline
    while ((curr = getchar()) != '\n' && i < 9) {
        input[i++] = curr;
    }
    //ends
    input[i] = '\0';
}

void calculator(){

    //start message

```

```

char message[] = "\nEnter to unsigned interger numbers: ";
int promptLength = sizeof(message)/sizeof(message[0]);
printArr(message, promptLength);

//set num arrays for the user inputs
char num1[10];
char num2[10];

//function to read in values
inputRead(num1);
inputRead(num2);

//gets string length of our inputs
int num1Length = strlen(num1);
int num2Length = strlen(num2);

//gets the sum of the added reversed nums
int result = addReversedInt(num1, num1Length, num2, num2Length);

//Final message code
char resultMes[] = "Results: ";
int resultMesLength = sizeof(resultMes)/sizeof(resultMes[0]);
printArr(resultMes, resultMesLength);

//prints the results of the reversed Int
printReversed(result);
}

int main(){
    //calls our calculator class
    calculator();
    return 0;
}

```


Output:

Test 1:

Enter to unsigned interger numbers:

321

52

Results:

841

PS C:\Users\willr\Documents\GitHub\Cs2263\Assignments\Assignment1>

Test 2:

Enter to unsigned interger numbers:

652

98

Results:

543

PS C:\Users\willr\Documents\GitHub\Cs2263\Assignments\Assignment1>

Test 3:

Enter to unsigned interger numbers:

1

685412

Results:

785412

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