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Assignment #1**

**Exercise 1:**  
  
#include <stdio.h>

#include <stdlib.h>

void printArray (char array[], int length);

int main (int argc, char \*\* argv) {

char array[] = {'H','e','l','l','o',' ','W','o','r','l','d','!'};

int length = sizeof(array);

printArray(array, length);

putchar('\n');

return 0;

}

void printArray (char array[], int length) {

for (int i = 0; i < length; i++) {

putchar(array[i]);

}

}

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**Exercise 2:**  
  
  
#include <stdio.h>

#include <stdlib.h>

void printEachNumber(unsigned int x);

int main (int argc, char \*\* argv) {

unsigned int x = 2263;

printEachNumber(x);

putchar('\n');

return EXIT\_SUCCESS;

}

void printEachNumber(unsigned int x) {

if (x == 0) {

return;

}

int r = x % 10;

printEachNumber(x/10);

putchar(r + '0'); // Convert digit to char

}

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**Exercise 3:**  
  
#include <stdio.h>

#include <stdlib.h>

#include <string.h>

void printArray(char prompt[], int length);

void printEachNumber(unsigned int x);

void convertToDecimal(char binaryArr[], int length);

int main (int argc, char \*\* argv) {

char prompt[] = {

'E','n','t','e','r',' ','a',' ','b','i','n','a','r','y',' ',

't','o',' ','b','e',' ','c','o','n','v','e','r','t','e','d',' ',

't','o',' ','d','e','c','i','m','a','l',':'

};

int promptLength = sizeof(prompt);

printArray(prompt, promptLength);

int i = 0;

int ch;

char binaryArr[32];

while ((ch = getchar()) != '\n' && i < 31) {

binaryArr[i] = ch;

i++;

}

convertToDecimal(binaryArr, i);

putchar('\n');

return EXIT\_SUCCESS;

}

void convertToDecimal(char binaryArr[], int length) {

unsigned int result = 0;

for (int i = 0; i < length; i++) {

result = result \* 2 + (binaryArr[i] - '0');

}

printEachNumber(result);

}

void printArray (char array[], int length) {

for (int i = 0; i < length; i++) {

putchar(array[i]);

}

}

void printEachNumber(unsigned int x) {

if (x == 0) {

return;

}

int r = x % 10;

printEachNumber(x/10);

putchar(r + '0'); // Convert digit to char

}

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