FIT3143 2024 - Applied Session Week 2

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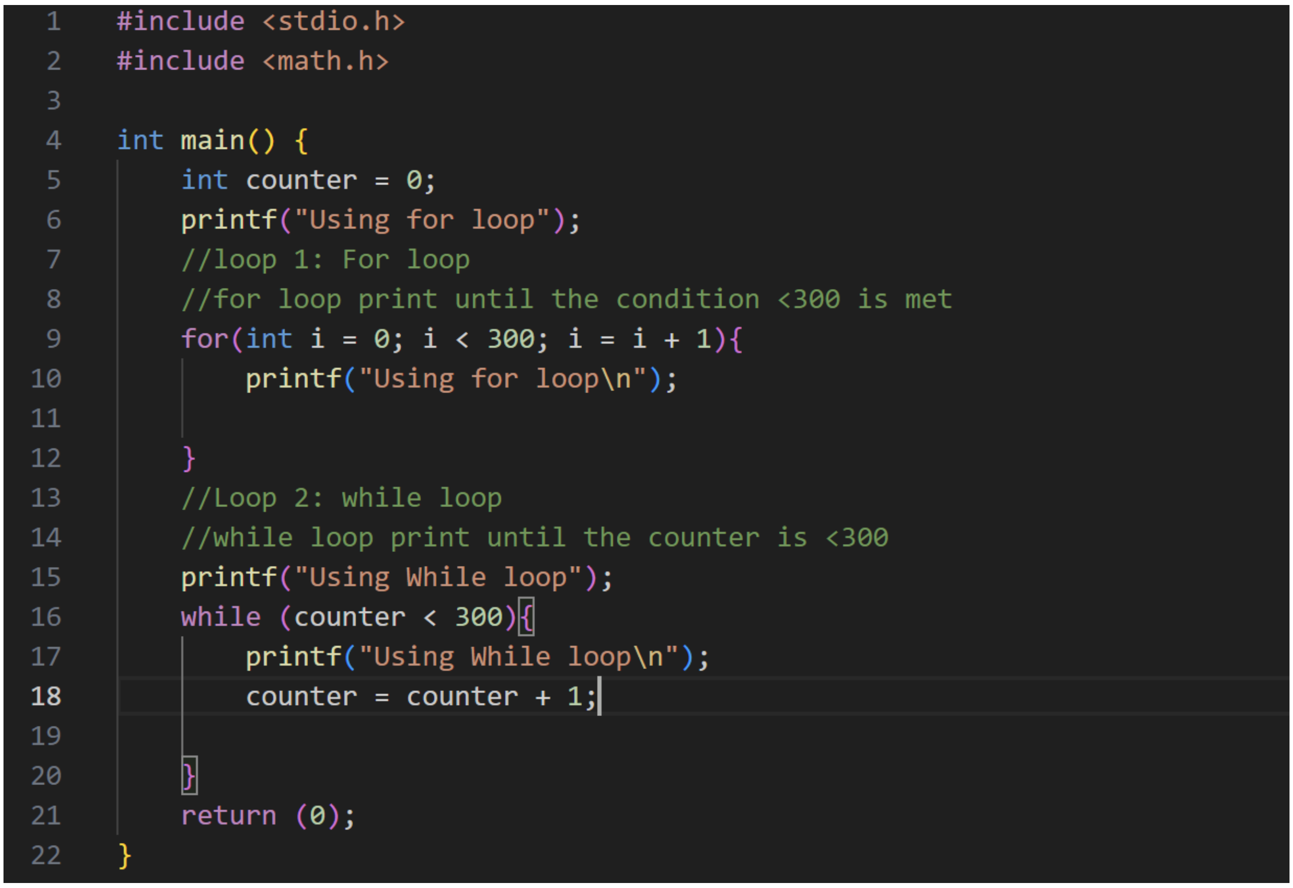
Task 3



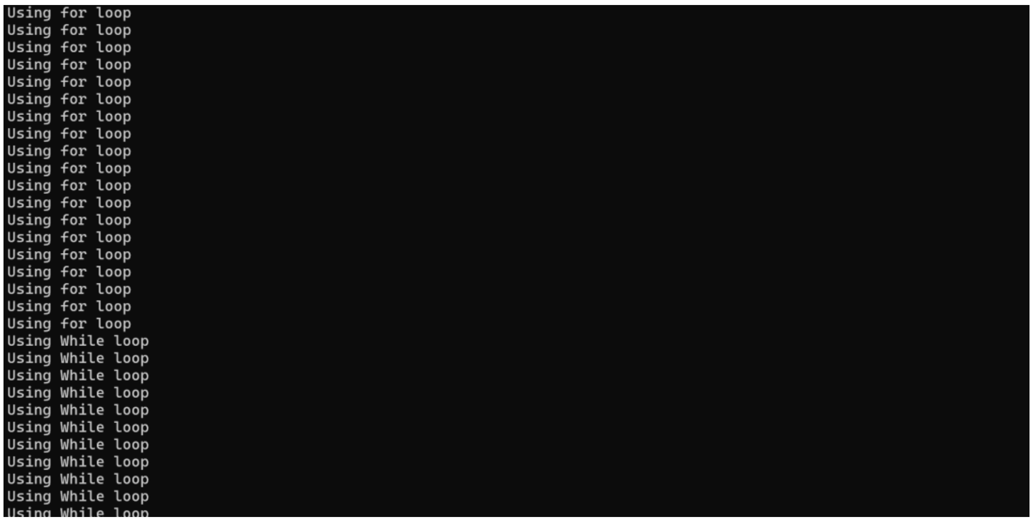
```c
#include <stdio.h>
#include <math.h>

int main() {
    int counter = 0;
    printf("Using for loop");
    //loop 1: For loop
    //for loop print until the condition <300 is met
    for(int i = 0; i < 300; i = i + 1){
        printf("Using for loop\n");

    }
    //Loop 2: while loop
    //while loop print until the counter is <300
    printf("Using While loop");
    while (counter < 300){
        printf("Using While loop\n");
        counter = counter + 1;

    }
    return (0);
}
```

Result:



```
Using for loop
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Using While loop
Using While loop
Using While loop
Using While loop
Using While loop
Using While loop
```
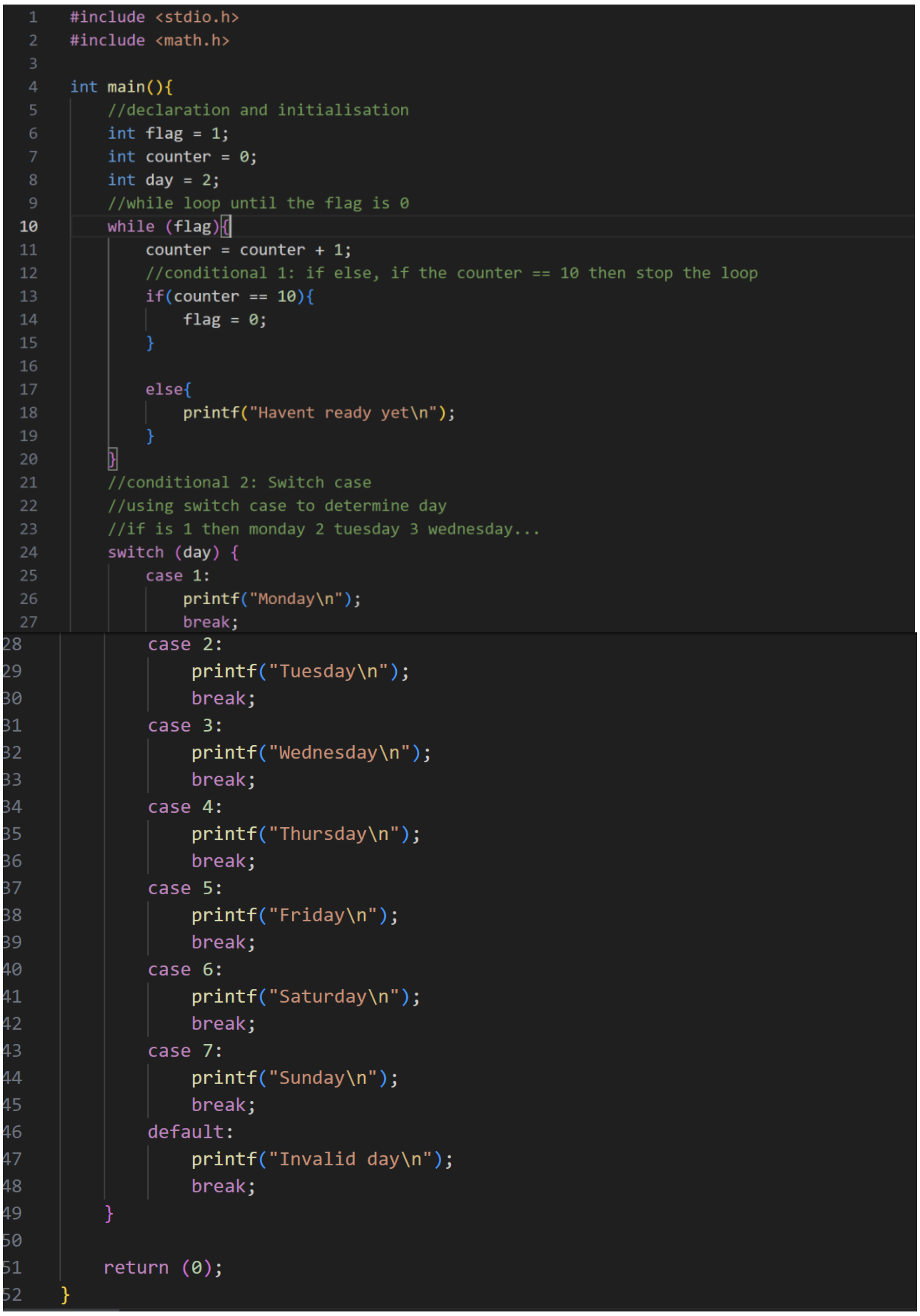
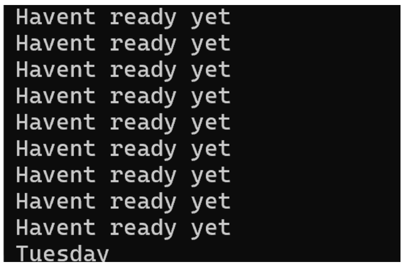

Task 5



```c
#include <stdio.h>
#include <math.h>

int main(){
    //declaration and initialisation
    int flag = 1;
    int counter = 0;
    int day = 2;
    //while loop until the flag is 0
    while (flag){
        counter = counter + 1;
        //conditional 1: if else, if the counter == 10 then stop the loop
        if(counter == 10){
            flag = 0;
        }

        else{
            printf("Havent ready yet\n");
        }
    }
    //conditional 2: Switch case
    //using switch case to determine day
    //if is 1 then monday 2 tuesday 3 wednesday...
    switch (day) {
        case 1:
            printf("Monday\n");
            break;
        case 2:
            printf("Tuesday\n");
            break;
        case 3:
            printf("Wednesday\n");
            break;
        case 4:
            printf("Thursday\n");
            break;
        case 5:
            printf("Friday\n");
            break;
        case 6:
            printf("Saturday\n");
            break;
        case 7:
            printf("Sunday\n");
            break;
        default:
            printf("Invalid day\n");
            break;
    }

    return (0);
}
```

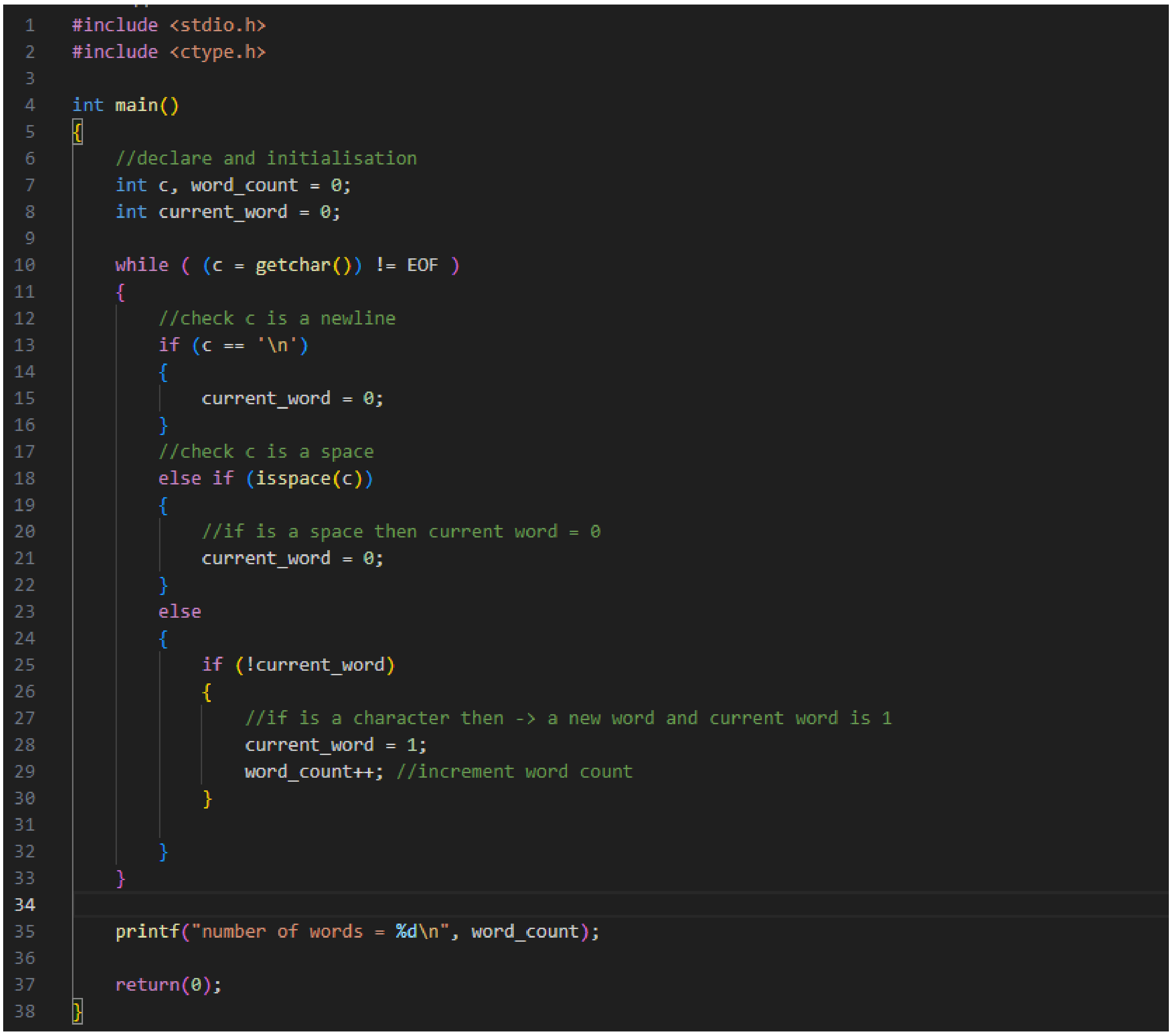
Result:



```
Havent ready yet
Havent ready yet
Havent ready yet
Havent ready yet
Havent ready yet
Havent ready yet
Havent ready yet
Havent ready yet
Havent ready yet
Tuesday
```

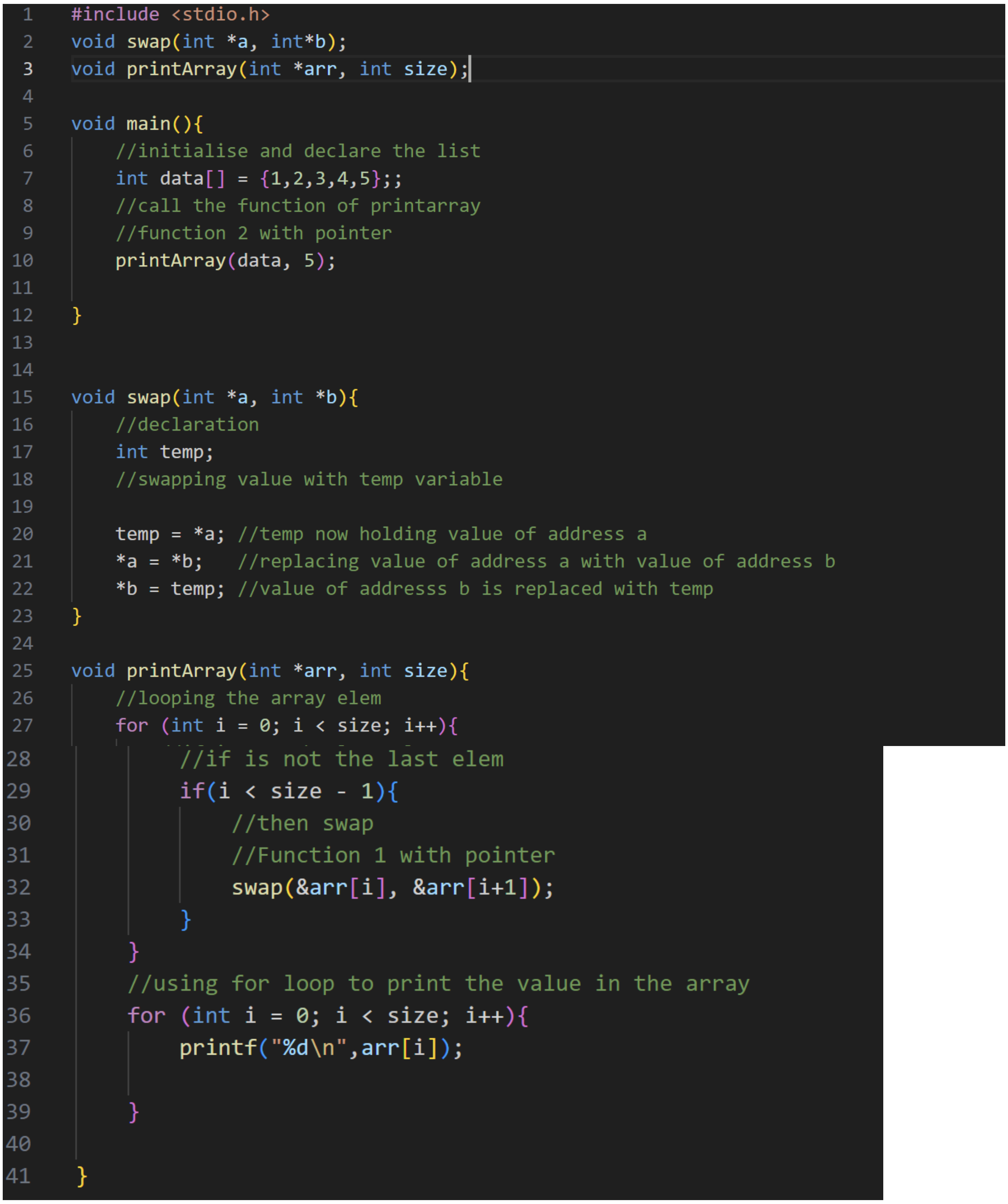
Task 7

We can use while ((c = getchar()) != EOF) to continuously reads characters until the end of file EOF. We can initialise a counter to count the words, we also declare a variable called current_word to count the words that is not using space to separate. For example hi\nhi (EOF). So whenever we encounter space or a new line we set current_word to 0. Then when c is a character and current_word is 0 then we set current_word to 1 and increment the word counter. So every time we need the current_word to be 0 so we can increment the word counter. Thus, every time we encounter space or new line we set current_word to 0.



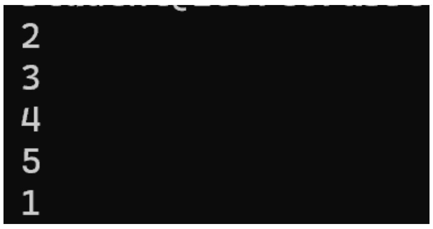
```c
#include <stdio.h>
#include <ctype.h>

int main()
{
    //declare and initialisation
    int c, word_count = 0;
    int current_word = 0;

    while ( (c = getchar()) != EOF )
    {
        //check c is a newline
        if (c == '\n')
        {
            current_word = 0;
        }
        //check c is a space
        else if (isspace(c))
        {
            //if is a space then current word = 0
            current_word = 0;
        }
        else
        {
            if (!current_word)
            {
                //if is a character then -> a new word and current word is 1
                current_word = 1;
                word_count++; //increment word count
            }

        }
    }

    printf("number of words = %d\n", word_count);

    return(0);
}
```

Task 11



```
#include <stdio.h>
void swap(int *a, int*b);
void printArray(int *arr, int size);

void main(){
    //initialise and declare the list
    int data[] = {1,2,3,4,5};;
    //call the function of printarray
    //function 2 with pointer
    printArray(data, 5);

}


void swap(int *a, int *b){
    //declaration
    int temp;
    //swapping value with temp variable

    temp = *a; //temp now holding value of address a
    *a = *b;   //replacing value of address a with value of address b
    *b = temp; //value of addresss b is replaced with temp
}

void printArray(int *arr, int size){
    //looping the array elem
    for (int i = 0; i < size; i++){
        //if is not the last elem
        if(i < size - 1){
            //then swap
            //Function 1 with pointer
            swap(&arr[i], &arr[i+1]);
        }
    }
    //using for loop to print the value in the array
    for (int i = 0; i < size; i++){
        printf("%d\n",arr[i]);

    }

}
```

Result:



```
2
3
4
5
1
```

Task 13

Initially BValue is declared as a pointer by this line “int AValue, *BValue;”. Then AValue is initialised with the value 101. Then BValue pointer is set to AValue’s address. So now BValue is pointing to AValue’s address. After that, BValue is dereferencing using *BValue, so it accessed the value stored at the address the pointer is pointing to, which is AValue’s address so BValue returns 101.