main.c

Run

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

#define MAX 100

void encrypt(char *plaintext, int *key, char
    *ciphertext) {
    int i;
    for (i = 0; plaintext[i] != '\0'; i++) {
        if (plaintext[i] == ' ') {
            ciphertext[i] = ' '; // preserve
                space
        } else {
            int p = toupper(plaintext[i]) - 'A';
            int c = (p + key[i]) % 26;
            ciphertext[i] = 'A' + c;
        }
```

Output

Clear

```
Plaintext A:  send more money
Key Stream A:  9  0  1  7 23 15 21 14 11 11  2  8  9  0
    -554320016
Ciphertext A: BEOK BJFP OWWE/

Plaintext B:  cash not needed
Ciphertext B: BNAZ ADI ZNSNNC
Recovered Key: 25 13  8 18   13 15 15   12  9 14 10  9
    25


=== Code Execution Successful ===
```

main.c

Run

```
    ciphertext[i] = '\0';
}

void decrypt(char *ciphertext, int *key, char
    *plaintext) {
    int i;
    for (i = 0; ciphertext[i] != '\0'; i++) {
        if (ciphertext[i] == ' ') {
            plaintext[i] = ' ';
        } else {
            int c = toupper(ciphertext[i]) - 'A'
                ;
            int p = (c - key[i] + 26) % 26;
            plaintext[i] = 'A' + p;
        }
    }
    plaintext[i] = '\0';
}
```

Output

Clear

```
Plaintext A:  send more money
Key Stream A:  9  0  1  7 23 15 21 14 11 11  2  8  9  0
    -554320016
Ciphertext A: BEOK BJFP OWWE/

Plaintext B:  cash not needed
Ciphertext B: BNAZ ADI ZNSNNC
Recovered Key: 25 13  8 18   13 15 15   12  9 14 10  9
    25


=== Code Execution Successful ===
```

main.c

Run

```
    printKey(key1, strlen(plaintext1));
    printf("Ciphertext A: %s\n\n", ciphertext1);

    // PART B
    char plaintext2[] = "cash not needed";
    char ciphertext2[MAX] = "BNAZ ADI ZNSNNC";
        // From ciphertext1 above
    int key2[MAX];

    findKey(plaintext2, ciphertext2, key2);
    printf("Plaintext B:  %s\n", plaintext2);
    printf("Ciphertext B: %s\n", ciphertext2);
    printf("Recovered Key: ");
    printKey(key2, strlen(plaintext2));

    return 0;
}
```

Output

Clear

```
Plaintext A:  send more money
Key Stream A:  9  0  1  7 23 15 21 14 11 11  2  8  9  0
    -554320016
Ciphertext A: BEOK BJFP OWWE/

Plaintext B:  cash not needed
Ciphertext B: BNAZ ADI ZNSNNC
Recovered Key: 25 13  8 18   13 15 15   12  9 14 10  9
    25


=== Code Execution Successful ===
```