1)

EXAMPLE 1:

```
#include <stdio.h>

int main() {
    int P[] = {30, 45, 25, 60, 20};
    int n = 5;
    int i,j;
    int inversion_count = 0;
    for (i = 0; i < n; i++) {
        for (j = i + 1; j < n; j++) {
            if (P[i] > P[j]) {
                inversion_count++;
            }
        }
    }

    printf("The inversion count is %d\n", inversion_count);

    return 0;
}
```

EXAMPLE 2:

```
#include <stdio.h>

int main() {
    int P[] = {1,9,6,4,5};
    int n = 5;
    int i,j;
    int inversion_count = 0;

    for (i = 0; i < n; i++) {
        for (j = i + 1; j < n; j++) {
            if (P[i] > P[j]) {
                inversion_count++;
            }
        }
```

```
    }
    printf("The inversion count is %d\n", inversion_count);

    return 0;
}
```

2)

```
#include <stdio.h>

int main() {
    int Sales[] = {10, 20, 15, 30, 25};
    int n = sizeof(Sales) / sizeof(Sales[0]);
    int PrefixSum[n];
    PrefixSum[0] = Sales[0];

    for (int i = 1; i < n; i++) {
        PrefixSum[i] = PrefixSum[i - 1] + Sales[i];
    }

    printf("PrefixSum[] = {");
    for (int i = 0; i < n; i++) {
        printf("%d", PrefixSum[i]);
        if (i < n - 1) {
            printf(", ");
        }
    }
    printf("}\n");

    return 0;
}
```

3)

```
#include <stdio.h>

int main() {
    int Fuel[] = {5, 10, 3, 7, 8};
    int m = 5;
```

```
    int PostfixSum[m];
    PostfixSum[m - 1] = Fuel[m - 1];

    for (int i = m - 2; i >= 0; i--) {
        PostfixSum[i] = PostfixSum[i + 1] +
    Fuel[i]; }

    printf("PostfixSum[] = {");
    for (int i = 0; i < m; i++) {
        printf("%d", PostfixSum[i]);
        if (i < m - 1) {
            printf(", ");
        }
    }
    printf("}\n");

    return 0;
}
```

4)

```
#include <stdio.h>
#include <stdbool.h>

int main() {
    int N[] = {111, 222, 333, 4444, 666};
    int k = 5;
    bool digits[10] = {false};
    int distinct_digits[10];
    int num_distinct = 0;

    for (int i = 0; i < k; i++) {
        int num = N[i];
        while (num > 0) {
            int digit = num % 10;
            if (!digits[digit]) {
                digits[digit] = true;
                distinct_digits[num_distinct++] =
```

```
            digit; }
            num =num/ 10;
        }
    }

    for (int i = 0; i < num_distinct; i++) { for (int j
            = i + 1; j < num_distinct; j++) { if
       (distinct_digits[i] > distinct_digits[j]) { int
                  temp = distinct_digits[i];
               distinct_digits[i] = distinct_digits[j];
               distinct_digits[j] = temp;
            }
        }
    }

    for (int i = 0; i < num_distinct; i++) {
         printf("%d", distinct_digits[i]);
        if (i < num_distinct - 1)
        printf(", ");
    }

    return 0;
}
```