

1

```
week2 > C index.c > ...
1 #include <stdio.h>
2
3 int main(){
4     printf("hello world!!\n");
5     return 0;
6 }
7
```

PROBLEMS

OUTPUT

DEBUG CONSOLE

TERMINAL

PORTS

```
PS C:\Clzstuffs\HPC\week2> gcc index.c -o index
PS C:\Clzstuffs\HPC\week2> ./index
hello world!!
PS C:\Clzstuffs\HPC\week2>
```

The screenshot shows a terminal window with the following content:

```
8
9  int main() {
10 |     int n = 19;
11 |     printf("Hello\n My favorite number is %d\n", n);
12 |     return EXIT_SUCCESS;
13 }
```

Below the code, the terminal tabs are visible: PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL (underlined), and PORTS. The terminal output is as follows:

```
PS C:\Clzstuffs\HPC\week2> gcc index.c -o index
PS C:\Clzstuffs\HPC\week2> ./index
hello world!!
PS C:\Clzstuffs\HPC\week2> gcc index.c -o index
PS C:\Clzstuffs\HPC\week2> ./index
Hello
My favorite number is 19
PS C:\Clzstuffs\HPC\week2>
```

3.

```
) week2 > C q3.c > ...
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 int main (){
5     int i;
6     for(i=0;i<5;i++){
7         printf("%d, ", i);
8     }
9     printf("\n");
10    while(i<10){
11        printf(" %d, ", i);
12        i++;
13    }
14 }
15 do{
16     printf(" %d, ", i);
17     i++;
18 }while(i<15);
19 printf("\n");
20
21 if(i>13){
22     printf("custard\n");
23 }else{
24     printf("gravy\n");
25 }
26 return EXIT_SUCCESS;
27
28 }
29
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

- PS C:\Clzstuffs\HPC\week2> ./q3
0, 1, 2, 3, 4,
5, 6, 7, 8, 9, 10, 11, 12, 13, 14,
custard
- PS C:\Clzstuffs\HPC\week2> █

4.

The screenshot shows a dark-themed instance of the Visual Studio Code (VS Code) code editor. At the top, there's a navigation bar with icons for back, forward, search, and other file operations. Below the bar, a tab bar displays several open files: 'k2a.c U', 'task2b.c U', 'task4.c U', 'task5.c U', and 'q4.c'. The 'q4.c' tab is active. The main workspace contains the following C code:

```
week2 > C q4.c > ...
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 int main (){
5     int x = 10;
6     int y = 3;
7     printf ("%d / %d = %d\n", x, y, x / y);
8     return EXIT_SUCCESS;
9
10 }
```

Below the code editor, a navigation bar includes tabs for PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL (which is underlined, indicating it's the active tab), and PORTS. The TERMINAL tab shows the output of a command-line session:

- PS C:\Clzstuffs\HPC\week2> ./q4
- 10 / 3 = 3
- PS C:\Clzstuffs\HPC\week2>

5.

```
week2 > C q5.c > ...
1  #include <stdio.h>
2  #include <stdlib.h>
3
4  int main (){
5      long int x =10L;
6      long int y =3L;
7      printf ("%ld / %ld = %ld\n", x, y, x / y);
8      return EXIT_SUCCESS;
9  }
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

- PS C:\Clzstuff\HPC\week2> ./q5
10 / 3 = 3
- PS C:\Clzstuff\HPC\week2> █

6.

```
week2 > C q6.c > ...
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 int main(){
5     float x=10.0f;
6     float y=3.0f;
7     printf ("%f / %f = %f\n", x, y, x / y);
8     return EXIT_SUCCESS;
9 }
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

- PS C:\Clzstuffs\HPC\week2> ./q6
10.000000 / 3.000000 = 3.333333
- PS C:\Clzstuffs\HPC\week2> █

The screenshot shows a terminal window with the following content:

```
PS C:\Clzstuffs\HPC\week2> ./q7
1
e = 1
f = 0
e = true
f = false
```

8.

The screenshot shows a VS Code interface with the following details:

- File Explorer:** Shows files k2a.c, task2b.c, task4.c, task5.c, and q8.c.
- Code Editor:** The active tab is q8.c, containing the following code:

```
week2 > C q8.c > main()
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 int main (){
5     printf("String are just arrays of chars\n");
6
7     char *message1="Hello";
8     char message2[]="Gyaneshwar";
9
10    printf("%s %s\n", message1, message2);
11    printf("Look in /usr/include/string.h for more string functions\n")
12    printf("that can be applied.Each has a man page.\n");
13    return EXIT_SUCCESS;
14 }
```
- Terminal:** The terminal tab is active, showing the output of running the program:

```
PS C:\Clzstuff\HPC\week2> ./q8
String are just arrays of chars
Hello Gyaneshwar
Look in /usr/include/string.h for more string functions
that can be applied.Each has a man page.
```
- Bottom Bar:** Shows tabs for PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL (underlined), and PORTS.

9.

week2 > **C** q9.c > ...

```
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 int inc(int w){
5     return w+1;
6
7 }
8 int main (){
9     int x=123;
10    int y =inc(x) ;
11    printf("%d,%d\n", x, y);
12    return EXIT_SUCCESS;
13 }
```

PROBLEMS OUTPUT DEBUG CONSOLE **TERMINAL** PORTS

- PS C:\Clzstuff\HPC\week2> ./q9
123,124
- PS C:\Clzstuff\HPC\week2> █

10.

The screenshot shows a terminal window with the following content:

```
week2 > C q10.c > ...
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 void inc(int *w){
5     *w = *w +1;
6
7 }
8 int main (){
9     int x=123;
10    int y = x ;
11    inc(&y);
12    printf("%d,%d\n", x, y);
13    return EXIT_SUCCESS;
14 }
```

Below the code, the terminal window has tabs: PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL (which is underlined), and PORTS.

Terminal history:

- PS C:\Clzstuff\HPC\week2> ./q10
123,124
- PS C:\Clzstuff\HPC\week2> █

week2 > **C** q11.c > ...

```
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 void inc(int *w){
5     *w = *w +1;
6
7 }
8 int main (){
9     int x=123;
10    int *y;
11    y=&x;
12    inc(y);
13    printf("%d,%d\n", x, *y);
14    return EXIT_SUCCESS;
15 }
```

PROBLEMS OUTPUT DEBUG CONSOLE **TERMINAL** PORTS

- PS C:\Clzstuff\HPC\week2> **./q11**
124,124
- PS C:\Clzstuff\HPC\week2> █

```
week2 > C q12.c > ...
1 #include <stdio.h>
2
3 struct t {
4     unsigned int h;
5     unsigned int m;
6     unsigned int s;
7 };
8
9 int main() {
10    struct t a;
11    struct t *b;
12
13    a.h = 5;
14    a.m = 9;
15    a.s = 45;
16
17    printf("Time a is %u:%02u:%02u\n", a.h, a.m, a.s);
18
19    b = &a;
20    printf("Time b is %u:%02u:%02u\n", b->h, b->m, b->s);
21
22    return 0;
23 }
24
```

PROBLEMS OUTPUT DEBUG CONSOLE **TERMINAL** PORTS

...

- PS C:\Clzstuff\HPC\week2> ./q12
Time a is 5:09:45
Time b is 5:09:45
- PS C:\Clzstuff\HPC\week2> █

13,

```
week2 > C q13.c > ...
1  #include <stdio.h>
2
3  typedef struct {
4      unsigned int h;
5      unsigned int m;
6      unsigned int s;
7  } t;
8
9  int main() {
10     t a;
11     t *b;
12
13     a.h = 5;
14     a.m = 9;
15     a.s = 45;
16
17     printf("Time a is %u:%02u:%02u\n", a.h, a.m, a.s);
18
19     return 0;
20 }
21
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

...

- PS C:\Clzstuff\HPC\week2> ./q12
Time a is 5:09:45
Time b is 5:09:45
- PS C:\Clzstuff\HPC\week2> gcc q13.c -o q13
- PS C:\Clzstuff\HPC\week2> ./q13
Time a is 5:09:45
- PS C:\Clzstuff\HPC\week2> █

14.

```
week2 > C q14.c > ...
1 #include <stdio.h>
2 #include <malloc.h>
3
4 typedef struct {
5     unsigned int h;
6     unsigned int m;
7     unsigned int s;
8 } t;
9
10 int main() {
11     t *a;
12     a = (t *) malloc(sizeof(t));
13
14     a->h = 5;
15     a->m = 9;
16     a->s = 45;
17
18     printf("Time a is %u:%02u:%02u\n", a->h, a->m, a->s);
19
20     free(a);
21     return 0;
22 }
23
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

- PS C:\Clzstuff\HPC\week2> **gcc** q14.c -o q14
- PS C:\Clzstuff\HPC\week2> ./q14
Time a is 5:09:45
- PS C:\Clzstuff\HPC\week2> █

15.

```
week2 > C q15.c > ...
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 struct pair {
5     int a;
6     int b;
7 };
8
9 int main() {
10    struct pair x;
11    x.a = 12;
12    x.b = 34;
13    printf("%d,%d,%ld\n", x.a, x.b, sizeof(struct pair));
14    return EXIT_SUCCESS;
15 }
16
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

- PS C:\Clzstuffs\HPC\week2> **gcc q15.c -o q15**
- PS C:\Clzstuffs\HPC\week2> **./q15**
12,34,8
- PS C:\Clzstuffs\HPC\week2> █

16.

```
week2 > C q16.c > ...
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 typedef struct {
5     int a;
6     int b;
7 } pair;
8
9 int main() {
10     pair x;
11     x.a = 12;
12     x.b = 34;
13     printf("%d,%d,%ld\n", x.a, x.b, sizeof(pair));
14     return EXIT_SUCCESS;
15 }
16
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

- PS C:\Clzstuff\HPC\week2> **gcc q16.c -o q16**
- PS C:\Clzstuff\HPC\week2> **./q16**
12,34,8
- PS C:\Clzstuff\HPC\week2> █

17.

```
..   C q13.c  U   C q14.c  U   C q15.c  U   C q16.c
week2 > C q17.c > main()
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 typedef struct {
5     int a;
6     int b;
7 } pair;
8
9 void inc(pair *w) {
10    w->a = w->a + 1;
11    w->b = w->b + 1;
12 }
13
14 int main() {
15     pair x;
16     x.a = 12;
17     x.b = 34;
18     inc(&x);
19     printf("%d,%d\n", x.a, x.b);
20     return EXIT_SUCCESS;
21 }
22
```

M PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

U ● PS C:\Clzstuff\HPC\week2> gcc q17.c -o q17
U ● PS C:\Clzstuff\HPC\week2> ./q17
U 13,35
U ○ PS C:\Clzstuff\HPC\week2> █

```
C q14.c  U   C q15.c  U   C q16.c  U   C
week2 > C q18.c > main()
1 #include <stdio.h>
2 //include <stdlib.h>
3 #include <malloc.h>
4
5 typedef struct {
6     int a;
7     int b;
8 } pair;
9
10 void inc(pair *w) {
11     w->a = w->a + 1;
12     w->b = w->b + 1;
13 }
14
15 int main() {
16     pair *x;
17     x = malloc(sizeof(pair));
18     x->a = 12;
19     x->b = 34;
20     inc(x);
21     printf("%d,%d\n", x->a, x->b);
22     free(x);
23     return EXIT_SUCCESS;
24 }
25
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

- PS C:\Clzstuff\HPC\week2> gcc q18.c -o q18
- PS C:\Clzstuff\HPC\week2> ./q18
13,35
- PS C:\Clzstuff\HPC\week2> █

```
week2 > C q19.c > main()
1  #include <stdio.h>
2  #include <stdlib.h>
3  #include <malloc.h>
4
5  int n = 10;
6
7  int main() {
8      int i;
9      int *x;
10
11     x = malloc(sizeof(int) * n);
12
13     printf("%ld\n", sizeof(x));
14     printf("%ld\n", sizeof(*x));
15
16     for(i = 0; i < n; i++) {
17         x[i] = 2 * i;
18     }
19
20     for(i = 0; i < n; i++) {
21         printf("%d,%d\n", i, x[i]);
22     }
23
24     free(x);
25     return EXIT_SUCCESS;
26 }
27
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

● PS C:\Clzstuffs\HPC\week2> **gcc q19.c -o q19**
● PS C:\Clzstuffs\HPC\week2> **./q19**

```
8
4
0,0
1,2
2,4
3,6
4,8
5,10
6,12
7,14
8,16
9,18
```

○ PS C:\Clzstuffs\HPC\week2>

```
week2 > C q20.c > main()
1 #include <stdio.h>
2 #include <stdlib.h>
3 #include <malloc.h>
4
5 int n = 10;
6
7 int main() {
8     int i;
9     int *x, *y;
10
11     x = malloc(sizeof(int) * n);
12     y = x;
13
14     for(i = 0; i < n; i++) {
15         *y = 2 * i;
16         y++;
17     }
18
19     y = x;
20
21     for(i = 0; i < n; i++) {
22         printf("%d,%d\n", i, *y);
23         y++;
24     }
25
26     free(x);
27     return EXIT_SUCCESS;
28 }
29
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Clzstuffs\HPC\week2> gcc q20.c -o q20

PS C:\Clzstuffs\HPC\week2> ./q20

0,0
1,2
2,4
3,6
4,8
5,10
6,12
7,14
8,16
9,18

```

week2 > ..\q21.c > [?] main()
4
5     int n = 10;
6
7     void inc(int *w) {
8         int i;
9         for(i = 0; i < n; i++) {
10             w[i] = w[i] + 1;
11         }
12     }
13
14     int main() {
15         int i;
16         int *x, *y;
17
18         x = malloc(sizeof(int) * n);
19         y = x;
20
21         for(i = 0; i < n; i++) {
22             *y = 2 * i;
23             y++;
24         }
25
26         inc(x);
27         y = x;
28
29         for(i = 0; i < n; i++) {
30             printf("%d,%d\n", i, *y);
31             y++;
32         }
33
34         free(x);
35         return EXIT_SUCCESS;
36     }
37

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Clzstuff\HPC\week2> gcc q21.c -o q21
 PS C:\Clzstuff\HPC\week2> ./q21

0,1
 1,3
 2,5
 3,7
 4,9
 5,11
 6,13
 7,15
 8,17
 9,19

PS C:\Clzstuff\HPC\week2>

```
week2 > C q22.c > main()
4
5     int n = 10;
6
7     void inc(int *w) {
8         int i;
9         for(i = 0; i < n; i++) {
10             *w = *w + 1;
11             w++;
12         }
13     }
14
15    int main() {
16        int i;
17        int *x, *y;
18
19        x = malloc(sizeof(int) * n);
20        y = x;
21
22        for(i = 0; i < n; i++) {
23            *y = 2 * i;
24            y++;
25        }
26
27        inc(x);
28        y = x;
29
30        for(i = 0; i < n; i++) {
31            printf("%d,%d\n", i, *y);
32            y++;
33        }
34
35        free(x);
36        return EXIT_SUCCESS;
37    }
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Clzstuff\HPC\week2> gcc q22.c -o q22
● PS C:\Clzstuff\HPC\week2> ./q22
0,1
1,3
2,5
3,7
4,9
5,11
6,13
7,15
8,17
9,19
```

23

```
week2 > C q24.c > output(int *)  
4  
5     int n = 10;  
6  
7     void initialise(int *w) {  
8         int i;  
9         for(i = 0; i < n; i++) {  
10             *w = 2 * i;  
11             w++;  
12         }  
13     }  
14  
15     void inc(int *w) {  
16         int i;  
17         for(i = 0; i < n; i++) {  
18             *w = *w + 1;  
19             w++;  
20         }  
21     }  
22  
23     void output(int *w) {  
24         int i;  
25         for(i = 0; i < n; i++) {  
26             printf("%d,%d\n", i, w[i]);  
27         }  
28     }  
29  
30     int main() {  
31         int *x;  
32  
33         x = malloc(sizeof(int) * n);  
34  
35         initialise(x);  
36         inc(x);  
37         output(x);  
38  
39         free(x);  
40         return EXIT_SUCCESS;  
41     }  
42  
PROBLEMS    OUTPUT    DEBUG CONSOLE    TERMINAL    PORTS  
4,9  
5,11  
5,11  
6,13  
7,15  
8,17  
9,19  
PS C:\Clzstuff\HPC\week2> 
```