

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> █

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

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> 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 the Visual Studio Code interface. At the top, there's a search bar with 'HPC' and several window icons. Below it, a file explorer shows a project structure with files: k2a.c U, task2b.c U, task4.c U, task5.c U, and q4.c. The main editor area displays the code for q4.c, which is a C program with 10 lines. The code includes stdio.h and stdlib.h, and defines a main function that sets x=10 and y=3, then prints the division result and returns EXIT\_SUCCESS. At the bottom, the TERMINAL panel shows the command ./q4 being executed, resulting in the output '10 / 3 = 3'.

```
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 }
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
● 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:\Clzstuffs\HPC\week2> ./q5

10 / 3 = 3

○ PS C:\Clzstuffs\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> █

← → Q HPC

... k2a.c U C task2b.c U C task4.c U C task5.c U C q7.c

week2 > C q7.c > ...

```
1  #include <stdio.h>
2  #include <stdlib.h>
3
4
5  int main (){
6      int a = 2;
7      int b = 3;
8      int c = 2 ;
9      int d = 4;
10
11
12      printf ("There is no booleans in c\n");
13      printf ("%d\n", a==b);
14      printf ("%d\n", a==c);
15      printf ("%d\n", a!=b);
16      printf ("%d\n", a!=c);
17      printf ("%d\n", a==b);
18      printf ("%d\n", !(a==b));
19
20      int e= (a==b) || (a==c);
21      int f =(a==b) && (a==c);
22
23      printf("e = %d\n", e);
24      printf("f = %d\n", f);
25
26      if(e){
27          printf("e = true\n");
28      }else{
29          printf("e = false\n");
30      }
31
32      if(f){
33          printf("f = true\n");
34      }else{
35          printf("f = false\n");
36      }
37
38      return EXIT_SUCCESS;
39  }
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Clzstuffs\HPC\week2> ./q7

1
e = 1
f = 0
e = true
f = false
PS C:\Clzstuffs\HPC\week2>

8.

The image shows a Visual Studio Code editor window with a C program named `q8.c` open. The program is a simple C application that prints out some information about strings and arrays. The code is as follows:

```
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 }
```

The program is executed in a terminal window, and the output is as follows:

```
PS C:\Clzstuffs\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.
PS C:\Clzstuffs\HPC\week2>
```

The terminal window also shows a list of open files: `k2a.c U`, `C task2b.c U`, `C task4.c U`, `C task5.c U`, and `C q8.c`. The terminal window has tabs for `PROBLEMS`, `OUTPUT`, `DEBUG CONSOLE`, `TERMINAL`, and `PORTS`. The `TERMINAL` tab is selected, and the output is displayed. The terminal window also has a search bar and a list of open files.

9.



The image shows a Visual Studio Code editor window with a dark theme. At the top, there is a search bar with the text "HPC". Below the search bar, there are several tabs for C files: "task2a.c U", "task2b.c U", "task4.c U", and "task5.c". The active tab is "q9.c", which is open in the editor. The code in the editor is as follows:

```
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 }
```

Below the editor, there is a panel with tabs for "PROBLEMS", "OUTPUT", "DEBUG CONSOLE", "TERMINAL", and "PORTS". The "TERMINAL" tab is selected, showing the following output:

```
● PS C:\Clzstuffs\HPC\week2> ./q9
123,124
○ PS C:\Clzstuffs\HPC\week2> 
```

10.

... J C task2a.c U C task2b.c U C task4.c U C task5.

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 }

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS  
● PS C:\Clzstuffs\HPC\week2> ./q10  
123,124  
○ PS C:\Clzstuffs\HPC\week2>

11.

... J C task2a.c U C task2b.c U C task4.c U C task5.c U C q1

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:\Clzstuffs\HPC\week2> ./q11  
124,124  
○ PS C:\Clzstuffs\HPC\week2>

12.

← → 🔍 HPC

C task2a.c U C task2b.c U C task4.c U C task5.c U C q12.c

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:\Clzstuffs\HPC\week2> ./q12  
Time a is 5:09:45  
Time b is 5:09:45  
○ PS C:\Clzstuffs\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:\Clzstuffs\HPC\week2> ./q12  
Time a is 5:09:45  
Time b is 5:09:45
- PS C:\Clzstuffs\HPC\week2> gcc q13.c -o q13
- PS C:\Clzstuffs\HPC\week2> ./q13  
Time a is 5:09:45
- PS C:\Clzstuffs\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:\Clzstuffs\HPC\week2> gcc q14.c -o q14
- PS C:\Clzstuffs\HPC\week2> ./q14  
Time a is 5:09:45
- PS C:\Clzstuffs\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.

C q12.c	M	C q13.c	U	C q14.c	U	C q15.c	U
---------	---	---------	---	---------	---	---------	---

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

17.



C q13.cU   C q14.cU   C q15.cU   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

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS

- PS C:\Clzstuffs\HPC\week2> gcc q17.c -o q17
- PS C:\Clzstuffs\HPC\week2> ./q17  
13,35
- PS C:\Clzstuffs\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:\Clzstuffs\HPC\week2> gcc q18.c -o q18
● PS C:\Clzstuffs\HPC\week2> ./q18
13,35
○ PS C:\Clzstuffs\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 > C:\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:\Clzstuffs\HPC\week2> gcc q21.c -o q21
PS C:\Clzstuffs\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:\Clzstuffs\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:\Clzstuffs\HPC\week2> gcc q22.c -o q22
● PS C:\Clzstuffs\HPC\week2> ./q22
0,1
1,3
2,5
3,7
4,9
5,11
6,13
7,15
8,17
9,19
○ PS C:\Clzstuffs\HPC\week2> 
```

```
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:\Clzstuffs\HPC\week2> 
```