

1)

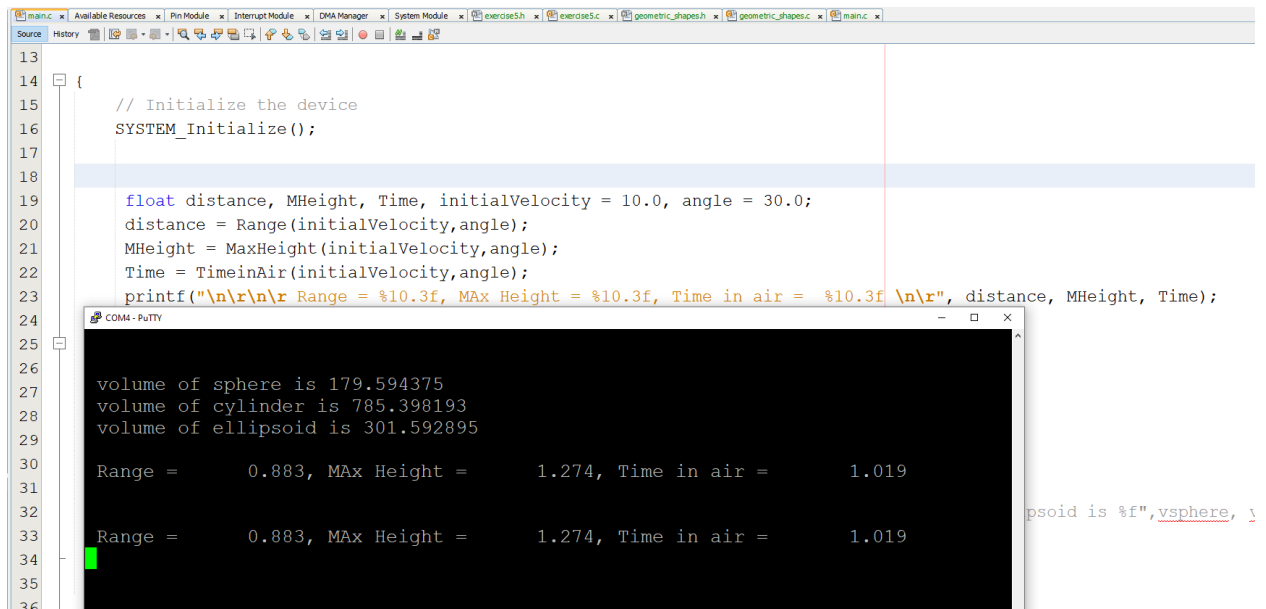
```
1 #include <stdio.h>
2 #include <stdlib.h>
3 #include <string.h>
4 #include <math.h>
5
6
7 #include "mcc_generated_files/mcc.h"
8 float g = 9.81, pi;
9 float Range(float initialVelocity, float angle);
10 float MaxHeight(float initialVelocity, float angle);
11 float TimeinAir(float initialVelocity, float angle);
12
13 /*
14 | Main application
15 */
16 void main(
17 )
18 {
19     // Initialize the device
20     SYSTEM_Initialize();
21     pi = 4*atanf(1); // Global
22
23
24
25     float distance, MHeight, Time, initialVelocity = 10.0, angle = 30.0;
26     distance = Range(initialVelocity, angle);
27     MHeight = MaxHeight(initialVelocity, angle);
28     Time = TimeinAir(initialVelocity, angle);
29     printf("\n\nRange = %10.3f, Max Height = %10.3f, Time in air = %10.3f\n\n", distance, MHeight, Time);
30
31
32
33
34
35
36
37
38
39
40
41
42
43 {
44     // Add your application code
45 }
46
47
48 float Range(float initialVelocity, float angle)
49 {
50     float Range;
51     Range= 2*initialVelocity*sinf(angle*pi/180.0)*cosf(angle*pi/180.0)/g;
52
53     return Range;
54 }
55
56 float MaxHeight(float initialVelocity, float angle)
57 {
58     float MaxHeight;
59
60     MaxHeight= powf(initialVelocity*sinf(angle*pi/180.0),2)/2.0/g;
61
62     return MaxHeight;
63 }
64
65 float TimeinAir(float initialVelocity, float angle)
66 {
67     float TimeinAir;
68
69     TimeinAir= 2*initialVelocity*sinf(angle*pi/180.0)/g;
70
71     return TimeinAir;
72 }
73
```

```
Range =      0.883, MAx Height =      1.274, Time in air =      1.019
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```

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Range =      0.883, MAx Height =      1.274, Time in air =      1.019
```

```
Range =      0.883, MAx Height =      1.274, Time in air =      1.019
```

2)



The image shows a screenshot of a development environment. The top part is a code editor with a file explorer on the left. The code is in C and is part of a program that calculates the volume of geometric shapes and the range, maximum height, and time in air for a projectile. The code is as follows:

```
13
14 {
15     // Initialize the device
16     SYSTEM_Initialize();
17
18
19     float distance, MHeight, Time, initialVelocity = 10.0, angle = 30.0;
20     distance = Range(initialVelocity,angle);
21     MHeight = MaxHeight(initialVelocity,angle);
22     Time = TimeinAir(initialVelocity,angle);
23     printf("\n\nRange = %10.3f, MAX Height = %10.3f, Time in air = %10.3f\n\n", distance, MHeight, Time);
24
25
26
27
28
29
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31
32
33
34
35
36
```

The bottom part of the image shows a terminal window titled "COM4 - PuTTY". It displays the output of the program:

```
volume of sphere is 179.594375
volume of cylinder is 785.398193
volume of ellipsoid is 301.592895

Range =      0.883, MAX Height =      1.274, Time in air =      1.019

Range =      0.883, MAX Height =      1.274, Time in air =      1.019
```

```
main.c x Available Resources x Pin Module x Interrupt Module x DMA Manager x System Module x exercise5.h x exercise5.c x geometric_shap
Source History
1 #define g 9.81
2 #define pi 4*atanf(1)
3
4 float Range(float initialvelocity, float angle);
5 float MaxHeight(float initialVelocity, float angle);
6 float TimeinAir(float initialVelocity, float angle);
7
```

```
main.c x Available Resources x Pin Module x Interrupt Module x DMA Manager x System Module x exercise5.h x exercise5.c x geometric_shapes.h x geometric_shapes.c x main.c x
Source History
1 #include "exercise5.h"
2 #include <stdio.h>
3 #include <stdlib.h>
4 #include <string.h>
5 #include <math.h>
6
7
8
9 float Range(float initialVelocity, float angle)
10 {
11     float Range;
12     Range= 2*initialVelocity*sinf(angle*pi/180.0)*cosf(angle*pi/180.0)/g;
13
14     return Range;
15 }
16
17 float MaxHeight(float initialVelocity, float angle)
18 {
19     float MaxHeight;
20
21     MaxHeight= powf(initialVelocity*sinf(angle*pi/180.0),2)/2.0/g;
22
23     return MaxHeight;
24 }
25
26 float TimeinAir(float initialVelocity, float angle)
```

3)

```
main.c | Available Resources | Pin Module | Interrupt Module | DMA Manager | System Module | exercise5h | exercise5c | geometric_shapes.h | geometric_shapes.c | main.c |
Source History
22 Time = TimeinAir(initialVelocity,angle);
23 printf("\n\r\n\r Range = %10.3f, MAX Height = %10.3f, Time in air = %10.3f \n\r", distance, MHeight, Time);
24 */
25
26 float sphere_radius=3.5, cylinder_radius=5, height =10, a=3, b=4, c=6;
27 float vsphere, vcylinder, vellipsoid;
28
29 vsphere= volume_sphere(sphere_radius);
30 vcylinder= volume_cylinder(cylinder_radius, height);
31 vellipsoid= volume_ellipsoid(a, b, c);
32 printf("\n\r\n\r volume of sphere is %f \n\r volume of cylinder is %f \n\r volume of ellipsoid is %f",vsphere, vcylinder, vellipsoid);
33 //printf("\n\r pi is %f",pi);
34
35 COM4 - PUTTY
36
37 volume of sphere is 179.594375
38 volume of cylinder is 785.398193
39 volume of ellipsoid is 301.592895
40
41
42
43
```

```
main.c x Available Resources x Pin Module x Interrupt Module x DMA Manager x System Module x exercise5.h x exercise5.c x geometric_shapes.h x geometric_shapes.c x main.c x
Source History
1 #define pi 4*atanf(1)
2
3 float volume_sphere(float radius);
4 float volume_cylinder(float radius, float height);
5 float volume_ellipsoid(float a, float b, float c);
6
7
```

```
main.c x Available Resources x Pin Module x Interrupt Module x DMA Manager x System Module x exercise5.h x exercise5.c x geometric_shapes.h x geometric_shapes.c x main.c x
Source History
1 #include <stdio.h>
2 #include <stdlib.h>
3 #include <string.h>
4 #include <math.h>
5 #include "geometric_shapes.h"
6
7 float volume_sphere(float radius)
8 {
9     float volumes;
10    volumes= 4*pi*pow(radius,3)/3;
11    return volumes;
12 }
13
14 float volume_cylinder(float radius, float height)
15 {
16     float volumec;
17     volumec=pi*height*pow(radius,2);
18     return volumec;
19 }
20
21 float volume_ellipsoid(float a, float b, float c)
22 {
23     float volumee;
24     volumee= 4*pi*a*b*c/3;
25     return volumee;
26 }
```