

Universidad Autónoma de Baja California

Campus Sauzal

Facultad de Ingeniería Arquitectura y Diseño

Math Quiz

Electricidad y Magnetismo

Grupo 432

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```
1 #include <stdio.h>
2 #include <stdlib.h>
3 #include <time.h>
4 #include <allegro5/allegro5.h>
5 #include <allegro5/allegro_font.h>
6 #include <allegro5/allegro_ttf.h>
7 #include <allegro5/allegro_image.h>
8 #include <allegro5/allegro_primitives.h>
9 #include <allegro5/allegro_audio.h>
10 #include <allegro5/allegro_acodec.h>
11
12 const int WIDTH = 800;
13 const int HEIGHT = 563;
14
15 //Lista de menu_states
16 //0 = Menu principal      5 = Niveles de restas      10 =
17 //          Multiplicacion lvl 1      15 = Division lvl 2
18 //1 = Niveles de sumas      6 = Restas lvl 1      11 =
19 //          Multiplicacion lvl 2      16 = Division lvl 3
20 //2 = Sumas lvl 1      7 = Restas lvl 2      12 =
21 //          Multiplicacion lvl 3      17 = GameOver
22 //3 = Sumas lvl 2      8 = Restas lvl 3      13 = Niveles
23 //          de division
24 //4 = Sumas lvl 3      9 = Niveles de multiplicacion      14 = Division
25 //          lvl 1
26
27 typedef struct _tsuma
28 {
29     int val1;
30     int val2;
31     int suma;
32 }Tsuma;
33
34 typedef struct _tdivi
35 {
36     int val1;
37     int val2;
38     float divi;
39 }Tdivi;
40
41 Tsuma funcionsuma(int nivel);
42 Tsuma funcionresta(int nivel);
43 Tsuma funcionmulti(int nivel);
44 Tdivi funcionaldivi(int nivel);
45
46 int main()
47 {
48     srand(time(NULL));
49     bool ciclo = true;
```

```
45     int imageWidth = 0;
46     int imageHeight = 0;
47     int checkwidth = 0;
48     int checkheight = 0;
49     int randomum = 0;
50     int vidas = 3;
51     int contador = 0;
52     int fps = 60;
53     int x, y;
54     float scale;
55     int menu_state = 0;
56     float gain;
57     bool sumal, suma2, suma3, resta1, resta2, resta3;
58     bool multi1, multi2, multi3, divi1, divi2, divi3;
59
60     Tsuma valsuma, valsuma2, valsuma3;
61     Tsuma valresta, valresta2, valresta3;
62     Tsuma valmulti, valmulti2, valmulti3;
63     Tdivi valdivi, valdivi2, valdivi3;
64
65     //Inicializando valores
66     valsuma = funcionsuma(1);
67     valsuma2 = funcionsuma(2);
68     valsuma3 = funcionsuma(3);
69     valresta = funcionresta(1);
70     valresta2 = funcionresta(2);
71     valresta3 = funcionresta(3);
72     valmulti = funcionmulti(1);
73     valmulti2 = funcionmulti(2);
74     valmulti3 = funcionmulti(3);
75     valdivi = funcionaldivi(1);
76     valdivi2 = funcionaldivi(2);
77     valdivi3 = funcionaldivi(3);
78
79
80     //Inicializacion de modulos
81     al_init();
82     al_init_font_addon();
83     al_init_ttf_addon();
84     al_install_keyboard();
85     al_install_mouse();
86     al_init_primitives_addon();
87     al_init_image_addon();
88     al_install_audio();
89     al_init_acodec_addon();
90
91     //Variables de Allegro
92     ALLEGRO_TIMER* timer = NULL;
93     ALLEGRO_EVENT_QUEUE* event_queue = NULL;
```

```
94     ALLEGRO_DISPLAY* display = NULL;
95     ALLEGRO_FONT* font = NULL;
96     ALLEGRO_FONT* font20 = NULL;
97     ALLEGRO_FONT* font20Bold = NULL;
98     ALLEGRO_FONT* font40Bold = NULL;
99     ALLEGRO_BITMAP* img_suma = NULL;
100    ALLEGRO_BITMAP* img_suma1 = NULL;
101    ALLEGRO_BITMAP* img_suma2 = NULL;
102    ALLEGRO_BITMAP* img_suma3 = NULL;
103    ALLEGRO_BITMAP* img_resta = NULL;
104    ALLEGRO_BITMAP* img_multi = NULL;
105    ALLEGRO_BITMAP* img_divi = NULL;
106    ALLEGRO_BITMAP* img_exit = NULL;
107    ALLEGRO_BITMAP* img_volver = NULL;
108    ALLEGRO_BITMAP* img_check = NULL;
109    ALLEGRO_BITMAP* fondo = NULL;
110    ALLEGRO_BITMAP* fondo_win = NULL;
111    ALLEGRO_BITMAP* fondo_lose = NULL;
112    ALLEGRO_BITMAP* vacio = NULL;
113    ALLEGRO_SAMPLE* musica = NULL;
114    ALLEGRO_SAMPLE* correcto = NULL;
115    ALLEGRO_SAMPLE* incorrecto = NULL;
116    ALLEGRO_SAMPLE* boton = NULL;
117    ALLEGRO_SAMPLE* perder = NULL;
118    ALLEGRO_SAMPLE* perder2 = NULL;
119    ALLEGRO_SAMPLE* ganar = NULL;
120    ALLEGRO_SAMPLE* ganar2 = NULL;
121    ALLEGRO_SAMPLE* revivir = NULL;
122    ALLEGRO_SAMPLE_INSTANCE* ins_mu = NULL;
123    ALLEGRO_SAMPLE_INSTANCE* ins_co = NULL;
124    ALLEGRO_SAMPLE_INSTANCE* ins_in = NULL;
125    ALLEGRO_SAMPLE_INSTANCE* ins_bo = NULL;
126    ALLEGRO_SAMPLE_INSTANCE* ins_pe = NULL;
127    ALLEGRO_SAMPLE_INSTANCE* ins_pe2 = NULL;
128    ALLEGRO_SAMPLE_INSTANCE* ins_ga = NULL;
129    ALLEGRO_SAMPLE_INSTANCE* ins_ga2 = NULL;
130    ALLEGRO_SAMPLE_INSTANCE* ins_re = NULL;
131
132 //Imagenes suma
133 img_suma = al_load_bitmap("sumas.png");
134 img_suma1 = al_load_bitmap("lv1.png");
135 img_suma2 = al_load_bitmap("lv2.png");
136 img_suma3 = al_load_bitmap("lv3.png");
137 img_check = al_load_bitmap("palomita.png");
138 //Imagenes resta
139 img_resta = al_load_bitmap("restas.png");
140 //Imagenes multiplicacion
141 img_multi = al_load_bitmap("multi.png");
142 //Imagenes division
```

```
143     img_divi = al_load_bitmap("divi.png");
144     //Imagen de fondo
145     fondo = al_load_bitmap("fondo.png");
146     fondo_win = al_load_bitmap("ganaste.jpg");
147     fondo_lose = al_load_bitmap("gameover.jpg");
148     //Imagenes de acciones
149     img_exit = al_load_bitmap("exit_btn.png");
150     img_volver = al_load_bitmap("volver.png");
151     vacio = al_load_bitmap("vacio.png");
152     //Cola de eventos
153     event_queue = al_create_event_queue();
154     //Pantalla
155     display = al_create_display(WIDTH, HEIGHT);
156     //Fonts
157     font = al_load_ttf_font("Roboto-Bold.ttf", 15, 0);
158     font20 = al_load_ttf_font("Roboto-Regular.ttf", 20, 0);
159     font20Bold = al_load_ttf_font("Roboto-Bold.ttf", 20, 0);
160     font40Bold = al_load_ttf_font("Roboto-Bold.ttf", 30, 0);
161     //Cargando audios
162     al_reserve_samples(10);
163     musica = al_load_sample("musica.mp3");
164     correcto = al_load_sample("correct.mp3");
165     incorrecto = al_load_sample("incorrect.mp3");
166     boton = al_load_sample("boton.mp3");
167     perder = al_load_sample("perder.mp3");
168     perder2 = al_load_sample("perder2.mp3");
169     ganar = al_load_sample("ganaste.mp3");
170     ganar2 = al_load_sample("ganaste2.mp3");
171     revivir = al_load_sample("corazon.mp3");
172     //Instancias de sonido
173     ins_mu = al_create_sample_instance(musica);
174     ins_co = al_create_sample_instance(correcto);
175     ins_in = al_create_sample_instance(incorrecto);
176     ins_bo = al_create_sample_instance(boton);
177     ins_pe = al_create_sample_instance(perder);
178     ins_pe2 = al_create_sample_instance(perder2);
179     ins_ga = al_create_sample_instance(ganar);
180     ins_ga2 = al_create_sample_instance(ganar2);
181     ins_re = al_create_sample_instance(revivir);
182     //Agregando instancias a mixer
183     al_attach_sample_instance_to_mixer(ins_mu, al_get_default_mixer());
184     al_attach_sample_instance_to_mixer(ins_co, al_get_default_mixer());
185     al_attach_sample_instance_to_mixer(ins_in, al_get_default_mixer());
186     al_attach_sample_instance_to_mixer(ins_bo, al_get_default_mixer());
187     al_attach_sample_instance_to_mixer(ins_pe, al_get_default_mixer());
188     al_attach_sample_instance_to_mixer(ins_pe2, al_get_default_mixer());
189     al_attach_sample_instance_to_mixer(ins_ga, al_get_default_mixer());
190     al_attach_sample_instance_to_mixer(ins_ga2, al_get_default_mixer());
191     al_attach_sample_instance_to_mixer(ins_re, al_get_default_mixer());
```

```
192     imageWidth = al_get_bitmap_width(img_suma);
193     imageHeight = al_get_bitmap_height(img_suma);
194     checkwidth = al_get_bitmap_width(img_check);
195     checkheight = al_get_bitmap_height(img_check);
196     x = WIDTH / 2 - imageWidth / 2;
197     y = HEIGHT / 2 - imageHeight / 2;
198     scale = 0.8;
199     gain = 1.0;
200     timer = al_create_timer(1.0 / fps);
201     int ganaste = 0;
202     suma1 = false;
203     suma2 = false;
204     suma3 = false;
205     resta1 = false;
206     resta2 = false;
207     resta3 = false;
208     multi1 = false;
209     multi2 = false;
210     multi3 = false;
211     divi1 = false;
212     divi2 = false;
213     divi3 = false;
214
215
216     al_register_event_source(event_queue, al_get_timer_event_source      ↗
217         (timer));
217     al_register_event_source(event_queue, al_get_keyboard_event_source    ↗
218         ());
218     al_register_event_source(event_queue, al_get_mouse_event_source());
219
220
221 //al_start_timer(timer);
222 while (ciclo == true)
223 {
224     ALLEGRO_EVENT event;
225     al_wait_for_event(event_queue, &event);
226     al_set_sample_instance_gain(ins_mu, gain);
227     al_set_sample_instance_gain(ins_co, gain);
228     al_set_sample_instance_gain(ins_in, gain);
229     al_set_sample_instance_gain(ins_bo, gain + 0.5);
230     al_set_sample_instance_gain(ins_ga, gain);
231     al_set_sample_instance_gain(ins_ga2, gain);
232     al_set_sample_instance_gain(ins_pe, gain);
233     al_set_sample_instance_gain(ins_pe2, gain);
234     al_set_sample_instance_gain(ins_re, gain);
235     al_set_sample_instance_playmode(ins_mu, ALLEGRO_PLAYMODE_LOOP);
236     al_set_sample_instance_playmode(ins_pe2, ALLEGRO_PLAYMODE_LOOP);
237     al_set_sample_instance_playmode(ins_ga2, ALLEGRO_PLAYMODE_LOOP);
238     al_play_sample_instance(ins_mu);
```

```
239         printf("Menu state: %d\n", menu_state);
240
241         if (event.type == ALLEGRO_EVENT_DISPLAY_CLOSE)
242         {
243             ciclo = false;
244         }
245         else if (event.type == ALLEGRO_EVENT_KEY_DOWN)
246         {
247             switch (event.keyboard.keycode)
248             {
249                 case ALLEGRO_KEY_ESCAPE:
250                     al_play_sample_instance(ins_pe);
251                     al_rest(0.8);
252                     ciclo = false;
253                     break;
254                 case ALLEGRO_KEY_Q:
255                     ciclo = false;
256                     break;
257                 case ALLEGRO_KEY_UP:
258                     gain = gain + 0.25;
259                     if (gain >= 2)
260                     {
261                         gain = 2;
262                     }
263                     break;
264                 case ALLEGRO_KEY_DOWN:
265                     gain = gain - 0.25;
266                     if (gain <= 0)
267                     {
268                         gain = 0;
269                     }
270                     break;
271                 case ALLEGRO_KEY_ENTER:
272                     al_stop_sample_instance(ins_pe2);
273                     al_stop_sample_instance(ins_ga2);
274                     al_play_sample_instance(ins_re);
275                     al_rest(0.5);
276                     menu_state = 0;
277                     break;
278             }
279         }
280         else if (menu_state == 0)
281         {
282             ganaste = 0;
283             randomum = rand() % 3 + 1;
284             vidas = 3;
285             //240 x 126
286             al_draw_bitmap(fondo, 0, 0, 0);
287             al_draw_scaled_bitmap(img_suma, 0, 0, imageWidth,
```

```
    imageHeight, 100, 175, imageWidth * scale, imageHeight * ?
    scale, 0);
288    al_draw_scaled_bitmap(img_resta, 0, 0, imageWidth,
    imageHeight, 518, 175, imageWidth * scale, imageHeight * ?
    scale, 0);
289    al_draw_scaled_bitmap(img_multi, 0, 0, imageWidth,
    imageHeight, 100, 425, imageWidth * scale, imageHeight * ?
    scale, 0);
290    al_draw_scaled_bitmap(img_divi, 0, 0, imageWidth,
    imageHeight, 518, 425, imageWidth * scale, imageHeight * ?
    scale, 0);
291    al_draw_scaled_bitmap(img_exit, 0, 0, imageWidth,
    imageHeight, (WIDTH/2) - 36, 500, imageWidth * 0.3,
    imageHeight * 0.3, 0);
292    if (suma1 == true && suma2 == true && suma3 == true)
293    {
294        al_draw_scaled_bitmap(img_check, 0, 0, checkwidth,
        checkheight, 300, 185, 65, 65, 0);
295    }
296    if (resta1 == true && resta2 == true && resta3 == true)
297    {
298        al_draw_scaled_bitmap(img_check, 0, 0, checkwidth,
        checkheight, 718, 185, 65, 65, 0);
299    }
300    if (multi1 == true && multi2 == true && multi3 == true)
301    {
302        al_draw_scaled_bitmap(img_check, 0, 0, checkwidth,
        checkheight, 300, 435, 65, 65, 0);
303    }
304    if (divi1 == true && divi2 == true && divi3 == true)
305    {
306        al_draw_scaled_bitmap(img_check, 0, 0, checkwidth,
        checkheight, 718, 435, 65, 65, 0);
307    }
308    al_flip_display();
309    al_flush_event_queue(event_queue);
310
311    if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
312    {
313        if ((event.mouse.button & 1) && (event.mouse.x >= 100) && ?
            (event.mouse.x <= (291)) && (event.mouse.y >= 175) && ?
            (event.mouse.y <= 275))
314        {
315            al_play_sample_instance(ins_bo);
316            menu_state = 1;
317        }
318        else if ((event.mouse.button & 1) && (event.mouse.x >= ?
            518) && (event.mouse.x <= (709)) && (event.mouse.y >= ?
            175) && (event.mouse.y <= 275))
```

```
319          {
320              al_play_sample_instance(ins_bo);
321              menu_state = 5;
322          }
323          else if ((event.mouse.button & 1) && (event.mouse.x >=
324                      100) && (event.mouse.x <= (291)) && (event.mouse.y >=
325                      425) && (event.mouse.y <= 525))
326          {
327              al_play_sample_instance(ins_bo);
328              menu_state = 9;
329          }
330          else if ((event.mouse.button & 1) && (event.mouse.x >=
331                      518) && (event.mouse.x <= (709)) && (event.mouse.y >=
332                      425) && (event.mouse.y <= 525))
333          {
334              al_play_sample_instance(ins_bo);
335              menu_state = 13;
336          }
337          else if ((event.mouse.button & 1) && (event.mouse.x >=
338                      (WIDTH/2 - 36)) && (event.mouse.x <= (436)) &&
339                      (event.mouse.y >= 500) && (event.mouse.y <= 537))
340          {
341              al_play_sample_instance(ins_bo);
342              ciclo = false;
343          }
344      }
345      else if (menu_state == 1) //Niveles suma
346      {
347          al_draw_bitmap(fondo, 0, 0, 0);
348          al_draw_scaled_bitmap(img_suma1, 0, 0, imageWidth,
349                      imageHeight, (WIDTH/2 - 110), 175, imageWidth * scale,
350                      imageHeight * scale, 0);
351          al_draw_scaled_bitmap(img_suma2, 0, 0, imageWidth,
352                      imageHeight, (WIDTH / 2 - 110), 300, imageWidth * scale,
353                      imageHeight * scale, 0);
354          al_draw_scaled_bitmap(img_suma3, 0, 0, imageWidth,
355                      imageHeight, (WIDTH / 2 - 110), 425, imageWidth * scale,
356                      imageHeight * scale, 0);
357          al_draw_scaled_bitmap(img_volver, 0, 0, imageWidth,
358                      imageHeight, 0, 0, imageWidth * 0.3, imageHeight * 0.3, 0);
359          if (suma1 == true)
360          {
361              al_draw_scaled_bitmap(img_check, 0, 0, checkwidth,
362                          checkheight, 500, 185, 65, 65, 0);
363          }
364          if (suma2 == true)
365          {
366              al_draw_scaled_bitmap(img_check, 0, 0, checkwidth,
```

```
            checkheight, 500, 315, 65, 65, 0);  
354        }  
355        if (suma3 == true)  
356        {  
357            al_draw_scaled_bitmap(img_check, 0, 0, checkwidth,  
358                                     checkheight, 500, 440, 65, 65, 0);  
359            al_flip_display();  
360            al_flush_event_queue(event_queue);  
361            vidas = 3;  
362  
363            if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)  
364            {  
365                if ((event.mouse.button & 1) && (event.mouse.x >= 291) && ↵  
366                               (event.mouse.x <= (481)) && (event.mouse.y >= 175) && ↵  
367                               (event.mouse.y <= 275))  
368                {  
369                    al_play_sample_instance(ins_bo);  
370                    menu_state = 2;  
371                }  
372  
373                if ((event.mouse.button & 1) && (event.mouse.x >= 291) && ↵  
374                               (event.mouse.x <= (481)) && (event.mouse.y >= 300) && ↵  
375                               (event.mouse.y <= 400))  
376                {  
377                    al_play_sample_instance(ins_bo);  
378                    menu_state = 3;  
379                }  
380  
381                if ((event.mouse.button & 1) && (event.mouse.x >= 291) && ↵  
382                               (event.mouse.x <= (481)) && (event.mouse.y >= 425) && ↵  
383                               (event.mouse.y <= 525))  
384                {  
385                    al_play_sample_instance(ins_bo);  
386                    menu_state = 4;  
387                }  
388            }  
389        }  
390        else if (menu_state == 2) //Suma nivel 1  
391        {  
392            al_draw_bitmap(fondo, 0, 0, 0);
```

```
393         //Rectangulos para el texto
394         al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight,
395                               217, 32, imageWidth* 1.6, imageHeight* 1, 0);
396         //Rectangulos respuestas
397         al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight,
398                               300, 175, imageWidth* scale, imageHeight* scale, 0);
399         al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight,
400                               300, 300, imageWidth* scale, imageHeight* scale, 0);
401         al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight,
402                               300, 425, imageWidth* scale, imageHeight* scale, 0);
403         al_draw_scaled_bitmap(img_volver, 0, 0, imageWidth,
404                               imageHeight, 0, 0, imageWidth * 0.3, imageHeight * 0.3, 0);
405         //Texto
406         al_draw_text(font20Bold, al_map_rgb(255, 255, 255), 250, 50,
407                     0, "Cual es el resultado de esta suma?");
408         al_draw_textf(font20Bold, al_map_rgb(255, 255, 255), 385,
409                     100, 0, "%d + %d", valsuma.val1, valsuma.val2);
410         al_draw_textf(font20Bold, al_map_rgb(255, 0, 255), 650, 50,
411                     0, "Aciertos: %d", contador);
412         al_draw_textf(font20Bold, al_map_rgb(255, 0, 255), 600, 25,
413                     0, "Vidas restantes: %d", vidas);
414         //al_draw_scaled_bitmap(img_suma, 0, 0, imageWidth,
415                               imageHeight, 100, 175, imageWidth * scale, imageHeight *
416                               scale, 0);
417         al_flip_display();
418         al_flush_event_queue(event_queue);

419         if (randonum == 1)
420         {
421             al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380,
422                           205, 0, "%d", valsuma.suma);
423             al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380,
424                           330, 0, "%d", valsuma.suma + 1);
425             al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380,
426                           455, 0, "%d", valsuma.suma - 1);
427             al_flip_display();
428             al_flush_event_queue(event_queue);

429             if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
430             {
431                 if ((event.mouse.button & 1) && (event.mouse.x >=
432                     291) && (event.mouse.x <= (509)) && (event.mouse.y >=
433                     175) && (event.mouse.y <= 275))
434                 {
435                     al_play_sample_instance(ins_bo);
436                     contador = contador + 1;
437                     printf("%d\n", contador);
438                     valsuma = funcionsuma(1);
```

```
426                     randomum = rand() % 3 + 1;
427                     if (contador == 15)
428                     {
429                         suma1 = true;
430                         menu_state = 18;
431                     }
432                 }
433
434             if ((event.mouse.button & 1) && (event.mouse.x >= 291) && (event.mouse.x <= (509)) && (event.mouse.y >= 300) && (event.mouse.y <= 400))
435             {
436                 al_play_sample_instance(ins_bo);
437                 vidas = vidas - 1;
438                 printf("Vidas restantes: %d", vidas);
439                 valsuma = funcionsuma(1);
440                 randomum = rand() % 3 + 1;
441                 if (vidas == 0)
442                 {
443                     menu_state = 17;
444                 }
445             }
446
447             if ((event.mouse.button & 1) && (event.mouse.x >= 291) && (event.mouse.x <= (509)) && (event.mouse.y >= 425) && (event.mouse.y <= 525))
448             {
449                 al_play_sample_instance(ins_bo);
450                 vidas = vidas - 1;
451                 printf("Vidas restantes: %d\n", vidas);
452                 valsuma = funcionsuma(1);
453                 randomum = rand() % 3 + 1;
454                 if (vidas == 0)
455                 {
456                     menu_state = 17;
457                 }
458             }
459             if ((event.mouse.button & 1) && (event.mouse.x >= 0) && (event.mouse.x <= (72)) && (event.mouse.y >= 0) && (event.mouse.y <= 36))
460             {
461                 al_play_sample_instance(ins_bo);
462                 menu_state = menu_state - 1;
463             }
464         }
465     }
466     else if (randomum == 2)
467     {
468         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, ↵
```

```
        205, 0, "%d", valsuma.suma - 1);
469      al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, >
                     330, 0, "%d", valsuma.suma);
470      al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, >
                     455, 0, "%d", valsuma.suma + 1);
471      al_flip_display();
472      al_flush_event_queue(event_queue);
473
474      if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
475      {
476          if ((event.mouse.button & 1) && (event.mouse.x >=
291) && (event.mouse.x <= (509)) && (event.mouse.y >=
175) && (event.mouse.y <= 275))
477          {
478              al_play_sample_instance(ins_bo);
479              vidas = vidas - 1;
480              printf("Vidas restantes: %d", vidas);
481              valsuma = funcionsuma(1);
482              randomum = rand() % 3 + 1;
483              if (vidas == 0)
484              {
485                  menu_state = 17;
486              }
487          }
488
489          if ((event.mouse.button & 1) && (event.mouse.x >=
291) && (event.mouse.x <= (509)) && (event.mouse.y >=
300) && (event.mouse.y <= 400))
490          {
491              al_play_sample_instance(ins_bo);
492              contador = contador + 1;
493              printf("%d\n", contador);
494              valsuma = funcionsuma(1);
495              randomum = rand() % 3 + 1;
496              if (contador == 15)
497              {
498                  sumal = true;
499                  menu_state = 18;
500              }
501          }
502
503          if ((event.mouse.button & 1) && (event.mouse.x >=
291) && (event.mouse.x <= (509)) && (event.mouse.y >=
425) && (event.mouse.y <= 525))
504          {
505              al_play_sample_instance(ins_bo);
506              vidas = vidas - 1;
507              printf("Vidas restantes: %d", vidas);
508              valsuma = funcionsuma(1);
```

```
509                     randomum = rand() % 3 + 1;
510                     if (vidas == 0)
511                     {
512                         menu_state = 17;
513                     }
514                 }
515                 if ((event.mouse.button & 1) && (event.mouse.x >= 0) ↵
516                     && (event.mouse.x <= (72)) && (event.mouse.y >= 0) && ↵
517                     (event.mouse.y <= 36))
518                     {
519                         al_play_sample_instance(ins_bo);
520                         menu_state = menu_state - 1;
521                     }
522             else if (randomum == 3)
523             {
524                 al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, ↵
525                     205, 0, "%d", valsuma.suma + 1);
526                 al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, ↵
527                     330, 0, "%d", valsuma.suma - 1);
528                 al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, ↵
529                     455, 0, "%d", valsuma.suma);
530                 al_flip_display();
531                 al_flush_event_queue(event_queue);
532
533                 if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
534                 {
535                     if ((event.mouse.button & 1) && (event.mouse.x >= 291) ↵
536                         && (event.mouse.x <= (509)) && (event.mouse.y >= 175) && (event.mouse.y <= 275))
537                     {
538                         al_play_sample_instance(ins_bo);
539                         vidas = vidas - 1;
540                         printf("Vidas restantes: %d", vidas);
541                         valsuma = funcionsuma(1);
542                         randomum = rand() % 3 + 1;
543                         if (vidas == 0)
544                         {
545                             menu_state = 17;
546                         }
547                     }
548
549                     if ((event.mouse.button & 1) && (event.mouse.x >= 291) ↵
550                         && (event.mouse.x <= (509)) && (event.mouse.y >= 300) && (event.mouse.y <= 400))
551                     {
552                         al_play_sample_instance(ins_bo);
553                         vidas = vidas - 1;
```

```
549                     printf("Vidas restantes: %d", vidas);
550                     valsuma = funcionsuma(1);
551                     randomum = rand() % 3 + 1;
552                     if (vidas == 0)
553                     {
554                         menu_state = 17;
555                     }
556                 }
557
558             if ((event.mouse.button & 1) && (event.mouse.x >=
291) && (event.mouse.x <= (509)) && (event.mouse.y >=
425) && (event.mouse.y <= 525))
559             {
560                 al_play_sample_instance(ins_bo);
561                 contador = contador + 1;
562                 printf("%d\n", contador);
563                 valsuma = funcionsuma(1);
564                 randomum = rand() % 3 + 1;
565                 if (contador == 15)
566                 {
567                     suma1 = true;
568                     menu_state = 18;
569                 }
570             }
571             if ((event.mouse.button & 1) && (event.mouse.x >= 0) &
&& (event.mouse.x <= (72)) && (event.mouse.y >= 0) &&
(event.mouse.y <= 36))
572             {
573                 al_play_sample_instance(ins_bo);
574                 menu_state = menu_state - 1;
575             }
576         }
577     }
578
579
580 }
581 else if (menu_state == 3) //Suma nivel 2
582 {
583     al_draw_bitmap(fondo, 0, 0, 0);
584     //Rectangulos para el texto
585     al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight,
217, 32, imageWidth * 1.6, imageHeight * 1, 0);
586     al_draw_scaled_bitmap(img_volver, 0, 0, imageWidth,
imageHeight, 0, 0, imageWidth * 0.3, imageHeight * 0.3, 0);
587     //Rectangulos respuestas
588     al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight,
300, 175, imageWidth* scale, imageHeight* scale, 0);
589     al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight,
300, 300, imageWidth* scale, imageHeight* scale, 0);
```

```
590         al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight,    ↵
591                         300, 425, imageWidth* scale, imageHeight* scale, 0);
592         //Texto
593         al_draw_text(font20Bold, al_map_rgb(255, 255, 255), 250, 50,    ↵
594             0, "Cual es el resultado de esta suma?");
593         al_draw_textf(font20Bold, al_map_rgb(255, 255, 255), 385,    ↵
594             100, 0, "%d + %d", valsuma2.val1, valsuma2.val2);
594         al_draw_textf(font20Bold, al_map_rgb(255, 0, 255), 650, 50,    ↵
595             0, "Aciertos: %d", contador);
595         al_draw_textf(font20Bold, al_map_rgb(255, 0, 255), 600, 25,    ↵
596             0, "Vidas restantes: %d", vidas);
596         //al_draw_scaled_bitmap(img_suma, 0, 0, imageWidth,
597                         imageHeight, 100, 175, imageWidth * scale, imageHeight *    ↵
598                         scale, 0);
597         al_flip_display();
598         al_flush_event_queue(event_queue);
599
600
601     if (randonum == 1)
602     {
603         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380,    ↵
604             205, 0, "%d", valsuma2.suma);
604         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380,    ↵
605             330, 0, "%d", valsuma2.suma + 1);
605         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380,    ↵
606             455, 0, "%d", valsuma2.suma - 1);
606         al_flip_display();
607         al_flush_event_queue(event_queue);
608
609         if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
610         {
611             if ((event.mouse.button & 1) && (event.mouse.x >=    ↵
612                 291) && (event.mouse.x <= (509)) && (event.mouse.y >=    ↵
613                 175) && (event.mouse.y <= 275))
614             {
615                 al_play_sample_instance(ins_bo);
616                 contador = contador + 1;
617                 printf("%d\n", contador);
618                 valsuma2 = funcionesuma(2);
619                 randomum = rand() % 3 + 1;
620                 if (contador == 15)
621                 {
622                     suma2 = true;
623                     menu_state = 18;
624                 }
625             if ((event.mouse.button & 1) && (event.mouse.x >=    ↵
625                 291) && (event.mouse.x <= (509)) && (event.mouse.y >=    ↵
```

```
300) && (event.mouse.y <= 400))
626    {
627        al_play_sample_instance(ins_bo);
628        vidas = vidas - 1;
629        printf("Vidas restantes: %d", vidas);
630        valsuma2 = funcionsuma(2);
631        randomum = rand() % 3 + 1;
632        if (vidas == 0)
633        {
634            menu_state = 17;
635        }
636    }
637
638    if ((event.mouse.button & 1) && (event.mouse.x >=
291) && (event.mouse.x <= (509)) && (event.mouse.y >=
425) && (event.mouse.y <= 525))
639    {
640        al_play_sample_instance(ins_bo);
641        vidas = vidas - 1;
642        printf("Vidas restantes: %d", vidas);
643        valsuma2 = funcionsuma(2);
644        randomum = rand() % 3 + 1;
645        if (vidas == 0)
646        {
647            menu_state = 17;
648        }
649    }
650    if ((event.mouse.button & 1) && (event.mouse.x >= 0) &gt;
&& (event.mouse.x <= (72)) && (event.mouse.y >= 0) && >
(event.mouse.y <= 36))
651    {
652        al_play_sample_instance(ins_bo);
653        menu_state = menu_state - 2;
654    }
655}
656
657 else if (randomum == 2)
658{
659    al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, >
205, 0, "%d", valsuma2.suma - 1);
660    al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, >
330, 0, "%d", valsuma2.suma);
661    al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, >
455, 0, "%d", valsuma2.suma + 1);
662    al_flip_display();
663
664    if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
665    {
666        if ((event.mouse.button & 1) && (event.mouse.x >= >
```

```
291) && (event.mouse.x <= (509)) && (event.mouse.y >= ↵
175) && (event.mouse.y <= 275))
667 {
668     al_play_sample_instance(ins_bo);
669     vidas = vidas - 1;
670     printf("Vidas restantes: %d", vidas);
671     valsuma2 = funcionsuma(2);
672     randomum = rand() % 3 + 1;
673     if (vidas == 0)
674     {
675         menu_state = 17;
676     }
677 }
678
679     if ((event.mouse.button & 1) && (event.mouse.x >= ↵
291) && (event.mouse.x <= (509)) && (event.mouse.y >= ↵
300) && (event.mouse.y <= 400))
680 {
681     al_play_sample_instance(ins_bo);
682     contador = contador + 1;
683     printf("%d\n", contador);
684     valsuma2 = funcionsuma(2);
685     randomum = rand() % 3 + 1;
686     if (contador == 15)
687     {
688         suma2 = true;
689         menu_state = 18;
690     }
691 }
692
693     if ((event.mouse.button & 1) && (event.mouse.x >= ↵
291) && (event.mouse.x <= (509)) && (event.mouse.y >= ↵
425) && (event.mouse.y <= 525))
694 {
695     al_play_sample_instance(ins_bo);
696     vidas = vidas - 1;
697     printf("Vidas restantes: %d", vidas);
698     valsuma2 = funcionsuma(2);
699     randomum = rand() % 3 + 1;
700     if (vidas == 0)
701     {
702         menu_state = 17;
703     }
704 }
705     if ((event.mouse.button & 1) && (event.mouse.x >= 0) ↵
&& (event.mouse.x <= (72)) && (event.mouse.y >= 0) && ↵
(event.mouse.y <= 36))
706 {
707     al_play_sample_instance(ins_bo);
```

```
708                         menu_state = menu_state - 2;
709                     }
710                 }
711             }
712         else if (randomum == 3)
713     {
714             al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, >
715                         205, 0, "%d", valsuma2.suma + 1);
716             al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, >
717                         330, 0, "%d", valsuma2.suma - 1);
718             al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, >
719                         455, 0, "%d", valsuma2.suma);
720             al_flip_display();
721
722             if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
723             {
724                 if ((event.mouse.button & 1) && (event.mouse.x >=      >
725                     291) && (event.mouse.x <= (509)) && (event.mouse.y >=      >
726                     175) && (event.mouse.y <= 275))
727                 {
728                     al_play_sample_instance(ins_bo);
729                     vidas = vidas - 1;
730                     printf("Vidas restantes: %d", vidas);
731                     valsuma2 = funcionsuma(2);
732                     randomum = rand() % 3 + 1;
733                     if (vidas == 0)
734                     {
735                         menu_state = 17;
736                     }
737
738                     if ((event.mouse.button & 1) && (event.mouse.x >=      >
739                     291) && (event.mouse.x <= (509)) && (event.mouse.y >=      >
740                     300) && (event.mouse.y <= 400))
741                     {
742                         al_play_sample_instance(ins_bo);
743                         vidas = vidas - 1;
744                         printf("Vidas restantes: %d", vidas);
745                         valsuma2 = funcionsuma(2);
746                         randomum = rand() % 3 + 1;
747                         if (vidas == 0)
748                         {
749                             menu_state = 17;
750                         }
751
752                         if ((event.mouse.button & 1) && (event.mouse.x >=      >
753                             291) && (event.mouse.x <= (509)) && (event.mouse.y >=      >
754                             425) && (event.mouse.y <= 525))
```

```
748          {
749              al_play_sample_instance(ins_bo);
750              contador = contador + 1;
751              printf("%d\n", contador);
752              valsuma2 = funcionsuma(2);
753              randomum = rand() % 3 + 1;
754              if (contador == 15)
755              {
756                  suma2 = true;
757                  menu_state = 18;
758              }
759          }
760          if ((event.mouse.button & 1) && (event.mouse.x >= 0) ➔
761             && (event.mouse.x <= (72)) && (event.mouse.y >= 0) && ➔
762             (event.mouse.y <= 36))
763          {
764              al_play_sample_instance(ins_bo);
765              menu_state = menu_state - 2;
766          }
767      }
768      else if (menu_state == 4) //Suma nivel 3
769      {
770          al_draw_bitmap(fondo, 0, 0, 0);
771          //Rectangulos para el texto
772          al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight, ➔
773                               217, 32, imageWidth * 1.6, imageHeight * 1, 0);
774          //Rectangulos respuestas
775          al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight, ➔
776                               300, 175, imageWidth* scale, imageHeight* scale, 0);
777          al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight, ➔
778                               300, 300, imageWidth* scale, imageHeight* scale, 0);
779          al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight, ➔
780                               300, 425, imageWidth* scale, imageHeight* scale, 0);
781          al_draw_scaled_bitmap(img_volver, 0, 0, imageWidth,
782                               imageHeight, 0, 0, imageWidth * 0.3, imageHeight * 0.3, 0);
783          //Texto
784          al_draw_text(font20Bold, al_map_rgb(255, 255, 255), 250, 50, ➔
785                      0, "Cual es el resultado de esta suma?");
786          al_draw_textf(font20Bold, al_map_rgb(255, 255, 255), 385, ➔
787                        100, 0, "%d + %d", valsuma3.val1, valsuma3.val2);
788          al_draw_textf(font20Bold, al_map_rgb(255, 0, 255), 650, 50, ➔
789                      0, "Aciertos: %d", contador);
790          al_draw_textf(font20Bold, al_map_rgb(255, 0, 255), 600, 25, ➔
791                      0, "Vidas restantes: %d", vidas);
792          //al_draw_scaled_bitmap(img_suma, 0, 0, imageWidth,
793                               imageHeight, 100, 175, imageWidth * scale, imageHeight * ➔
794                               scale, 0);
```

```
784         al_flip_display();
785         al_flush_event_queue(event_queue);
786
787     if (randomum == 1)
788     {
789         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 377, ↵
790                     205, 0, "%d", valsuma3.suma);
791         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 377, ↵
792                     330, 0, "%d", valsuma3.suma + 1);
793         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 377, ↵
794                     455, 0, "%d", valsuma3.suma - 1);
795         al_flip_display();
796         al_flush_event_queue(event_queue);
797
798     if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
799     {
800         if ((event.mouse.button & 1) && (event.mouse.x >=      ↵
801             291) && (event.mouse.x <= (509)) && (event.mouse.y >=      ↵
802             175) && (event.mouse.y <= 275))
803         {
804             al_play_sample_instance(ins_bo);
805             contador = contador + 1;
806             printf("%d\n", contador);
807             valsuma3 = funcionsuma(3);
808             randomum = rand() % 3 + 1;
809             if (contador == 15)
810             {
811                 suma3 = true;
812                 menu_state = 18;
813             }
814
815             if ((event.mouse.button & 1) && (event.mouse.x >=      ↵
816             291) && (event.mouse.x <= (509)) && (event.mouse.y >=      ↵
817             300) && (event.mouse.y <= 400))
818             {
819                 al_play_sample_instance(ins_bo);
820                 vidas = vidas - 1;
821                 printf("Vidas restantes: %d", vidas);
822                 valsuma3 = funcionsuma(3);
823                 randomum = rand() % 3 + 1;
824                 if (vidas == 0)
825                 {
826                     menu_state = 17;
827                 }
828             }
829
830             if ((event.mouse.button & 1) && (event.mouse.x >=      ↵
```

```
291) && (event.mouse.x <= (509)) && (event.mouse.y >= ↵
425) && (event.mouse.y <= 525))
{
    al_play_sample_instance(ins_bo);
    vidas = vidas - 1;
    printf("Vidas restantes: %d", vidas);
    valsuma3 = funcionsuma(3);
    randomum = rand() % 3 + 1;
    if (vidas == 0)
    {
        menu_state = 17;
    }
}
if ((event.mouse.button & 1) && (event.mouse.x >= 0) ↵
&& (event.mouse.x <= (72)) && (event.mouse.y >= 0) && ↵
(event.mouse.y <= 36))
{
    al_play_sample_instance(ins_bo);
    menu_state = menu_state - 3;
}
}
else if (randomum == 2)
{
    al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 377, ↵
        205, 0, "%d", valsuma3.suma - 1);
    al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 377, ↵
        330, 0, "%d", valsuma3.suma);
    al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 377, ↵
        455, 0, "%d", valsuma3.suma + 1);
    al_flip_display();
    al_flush_event_queue(event_queue);

    if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
    {
        if ((event.mouse.button & 1) && (event.mouse.x >= ↵
291) && (event.mouse.x <= (509)) && (event.mouse.y >= ↵
175) && (event.mouse.y <= 275))
        {
            al_play_sample_instance(ins_bo);
            vidas = vidas - 1;
            printf("Vidas restantes: %d", vidas);
            valsuma3 = funcionsuma(3);
            randomum = rand() % 3 + 1;
            if (vidas == 0)
            {
                menu_state = 17;
            }
        }
    }
}
```

```
866
867             if ((event.mouse.button & 1) && (event.mouse.x >=      ↵
868                 291) && (event.mouse.x <= (509)) && (event.mouse.y >=      ↵
869                 300) && (event.mouse.y <= 400))
870             {
871                 al_play_sample_instance(ins_bo);
872                 contador = contador + 1;
873                 printf("%d\n", contador);
874                 valsuma3 = funcionsuma(3);
875                 randomum = rand() % 3 + 1;
876                 if (contador == 15)
877                 {
878                     suma3 = true;
879                     menu_state = 18;
880                 }
881             if ((event.mouse.button & 1) && (event.mouse.x >=      ↵
882                 291) && (event.mouse.x <= (509)) && (event.mouse.y >=      ↵
883                 425) && (event.mouse.y <= 525))
884             {
885                 al_play_sample_instance(ins_bo);
886                 vidas = vidas - 1;
887                 printf("Vidas restantes: %d", vidas);
888                 valsuma3 = funcionsuma(3);
889                 randomum = rand() % 3 + 1;
890                 if (vidas == 0)
891                 {
892                     menu_state = 17;
893                 }
894             if ((event.mouse.button & 1) && (event.mouse.x >= 0)      ↵
895                 && (event.mouse.x <= (72)) && (event.mouse.y >= 0) &&      ↵
896                 (event.mouse.y <= 36))
897             {
898                 al_play_sample_instance(ins_bo);
899                 menu_state = menu_state - 3;
900             }
901         else if (randomum == 3)
902         {
903             al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 377,      ↵
904                 205, 0, "%d", valsuma3.suma + 1);
905             al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 377,      ↵
906                 330, 0, "%d", valsuma3.suma - 1);
907             al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 377,      ↵
908                 455, 0, "%d", valsuma3.suma);
909             al_flip_display();
```

```
906         al_flush_event_queue(event_queue);
907
908         if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
909     {
910             if ((event.mouse.button & 1) && (event.mouse.x >=
911                 291) && (event.mouse.x <= (509)) && (event.mouse.y >=
912                 175) && (event.mouse.y <= 275))
913             {
914                 al_play_sample_instance(ins_bo);
915                 vidas = vidas - 1;
916                 printf("Vidas restantes: %d", vidas);
917                 valsuma3 = funcionsuma(3);
918                 randomum = rand() % 3 + 1;
919                 if (vidas == 0)
920                 {
921                     menu_state = 17;
922                 }
923
924             if ((event.mouse.button & 1) && (event.mouse.x >=
925                 291) && (event.mouse.x <= (509)) && (event.mouse.y >=
926                 300) && (event.mouse.y <= 400))
927             {
928                 al_play_sample_instance(ins_bo);
929                 vidas = vidas - 1;
930                 printf("Vidas restantes: %d", vidas);
931                 valsuma3 = funcionsuma(3);
932                 randomum = rand() % 3 + 1;
933                 if (vidas == 0)
934                 {
935                     menu_state = 17;
936
937                 if ((event.mouse.button & 1) && (event.mouse.x >=
938                     291) && (event.mouse.x <= (509)) && (event.mouse.y >=
939                     425) && (event.mouse.y <= 525))
940                 {
941                     al_play_sample_instance(ins_bo);
942                     contador = contador + 1;
943                     printf("%d\n", contador);
944                     valsuma3 = funcionsuma(3);
945                     randomum = rand() % 3 + 1;
946                     if (contador == 15)
947                     {
948                         suma3 = true;
949                         menu_state = 18;
950                     }
951                 }
```

```
949             if ((event.mouse.button & 1) && (event.mouse.x >= 0) ↗
950                 && (event.mouse.x <= (72)) && (event.mouse.y >= 0) && ↗
951                     (event.mouse.y <= 36))
952             {
953                 al_play_sample_instance(ins_bo);
954                 menu_state = menu_state - 3;
955             }
956         }
957     else if (menu_state == 5) //Niveles resta
958     {
959         al_draw_bitmap(fondo, 0, 0, 0);
960         al_draw_scaled_bitmap(img_suma1, 0, 0, imageWidth,
961             imageHeight, (WIDTH / 2 - 110), 175, imageWidth* scale,
962             imageHeight* scale, 0);
963         al_draw_scaled_bitmap(img_suma2, 0, 0, imageWidth,
964             imageHeight, (WIDTH / 2 - 110), 300, imageWidth* scale,
965             imageHeight* scale, 0);
966         al_draw_scaled_bitmap(img_suma3, 0, 0, imageWidth,
967             imageHeight, (WIDTH / 2 - 110), 425, imageWidth* scale,
968             imageHeight* scale, 0);
969         al_draw_scaled_bitmap(img_volver, 0, 0, imageWidth,
970             imageHeight, 0, 0, imageWidth * 0.3, imageHeight * 0.3, 0);
971         if (resta1 == true)
972         {
973             al_draw_scaled_bitmap(img_check, 0, 0, checkwidth,
974                 checkheight, 500, 185, 65, 65, 0);
975         }
976         if (resta2 == true)
977         {
978             al_draw_scaled_bitmap(img_check, 0, 0, checkwidth,
979                 checkheight, 500, 315, 65, 65, 0);
980         }
981         if (resta3 == true)
982         {
983             al_draw_scaled_bitmap(img_check, 0, 0, checkwidth,
984                 checkheight, 500, 440, 65, 65, 0);
985         }
986         al_flip_display();
987         al_flush_event_queue(event_queue);
988         vidas = 3;
989
990         if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
991         {
992             if ((event.mouse.button & 1) && (event.mouse.x >= 291) && ↗
993                 (event.mouse.x <= (481)) && (event.mouse.y >= 175) && ↗
994                     (event.mouse.y <= 275))
995             {
```

```
984                     al_play_sample_instance(ins_bo);
985                     menu_state = 6;
986                 }
987
988             if ((event.mouse.button & 1) && (event.mouse.x >= 291) && ↵
989                 (event.mouse.x <= (481)) && (event.mouse.y >= 300) && ↵
990                 (event.mouse.y <= 400))
991             {
992                 al_play_sample_instance(ins_bo);
993                 menu_state = 7;
994             }
995
996             if ((event.mouse.button & 1) && (event.mouse.x >= 291) && ↵
997                 (event.mouse.x <= (481)) && (event.mouse.y >= 425) && ↵
998                 (event.mouse.y <= 525))
999             {
1000                 al_play_sample_instance(ins_bo);
1001                 menu_state = 8;
1002             }
1003
1004         }
1005     }
1006 }
1007 else if (menu_state == 6) //Resta lvl 1
1008 {
1009     al_draw_bitmap(fondo, 0, 0, 0);
1010     //Rectangulos para el texto
1011     al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight, ↵
1012         217, 32, imageWidth * 1.6, imageHeight * 1, 0);
1013     //Rectangulos respuestas
1014     al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight, ↵
1015         300, 175, imageWidth* scale, imageHeight* scale, 0);
1016     al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight, ↵
1017         300, 300, imageWidth* scale, imageHeight* scale, 0);
1018     al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight, ↵
1019         300, 425, imageWidth* scale, imageHeight* scale, 0);
1020     al_draw_scaled_bitmap(img_volver, 0, 0, imageWidth,
1021         imageHeight, 0, 0, imageWidth * 0.3, imageHeight * 0.3, 0);
1022     //Texto
1023     al_draw_text(font20Bold, al_map_rgb(255, 255, 255), 250, 50, ↵
1024         0, "Cual es el resultado de esta resta?");
1025     al_draw_textf(font20Bold, al_map_rgb(255, 255, 255), 385, ↵
1026         100, 0, "%d - %d", valresta.val1, valresta.val2);
```

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```
1020     al_draw_textf(font20Bold, al_map_rgb(255, 0, 255), 650, 50,    ↵
1021         0, "Aciertos: %d", contador);
1022     al_draw_textf(font20Bold, al_map_rgb(255, 0, 255), 600, 25,    ↵
1023         0, "Vidas restantes: %d", vidas);
1024     //al_draw_scaled_bitmap(img_suma, 0, 0, imageWidth,
1025     //    imageHeight, 100, 175, imageWidth * scale, imageHeight *
1026     //    scale, 0);
1027     al_flip_display();
1028     al_flush_event_queue(event_queue);
1029     //printf("%d, %d, %d\n", valresta.val1, valresta.val2,
1030     //    valresta.suma);
1031     printf("randomum = %d\n", randomum);

1032     if (randomum == 1)
1033     {
1034         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380,    ↵
1035             205, 0, "%d", valresta.suma);
1036         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380,    ↵
1037             330, 0, "%d", valresta.suma + 1);
1038         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380,    ↵
1039             455, 0, "%d", valresta.suma - 1);
1040         al_flip_display();
1041         al_flush_event_queue(event_queue);

1042         if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
1043         {
1044             if ((event.mouse.button & 1) && (event.mouse.x >=    ↵
1045                 291) && (event.mouse.x <= (509)) && (event.mouse.y >=    ↵
1046                 175) && (event.mouse.y <= 275))
1047             {
1048                 al_play_sample_instance(ins_bo);
1049                 contador = contador + 1;
1050                 printf("%d\n", contador);
1051                 valresta = funcionresta(1);
1052                 randomum = rand() % 3 + 1;
1053                 if (contador == 15)
1054                 {
1055                     restal1 = true;
1056                     menu_state = 18;
1057                 }
1058             }

1059             if ((event.mouse.button & 1) && (event.mouse.x >=    ↵
1060                 291) && (event.mouse.x <= (509)) && (event.mouse.y >=    ↵
1061                 300) && (event.mouse.y <= 400))
1062             {
1063                 al_play_sample_instance(ins_bo);
1064                 vidas = vidas - 1;
1065             }
1066         }
1067     }
1068 }
```

```
1057             printf("Vidas restantes: %d", vidas);
1058             valresta = funcionresta(1);
1059             randomum = rand() % 3 + 1;
1060             if (vidas == 0)
1061             {
1062                 menu_state = 17;
1063             }
1064         }
1065
1066         if ((event.mouse.button & 1) && (event.mouse.x >=
291) && (event.mouse.x <= (509)) && (event.mouse.y >=
425) && (event.mouse.y <= 525))
1067         {
1068             al_play_sample_instance(ins_bo);
1069             vidas = vidas - 1;
1070             printf("Vidas restantes: %d", vidas);
1071             valresta = funcionresta(1);
1072             randomum = rand() % 3 + 1;
1073             if (vidas == 0)
1074             {
1075                 menu_state = 17;
1076             }
1077         }
1078         if ((event.mouse.button & 1) && (event.mouse.x >= 0) &
& (event.mouse.x <= (72)) && (event.mouse.y >= 0) &&
(event.mouse.y <= 36))
1079         {
1080             al_play_sample_instance(ins_bo);
1081             menu_state = menu_state - 1;
1082         }
1083     }
1084 }
1085 else if (randomum == 2)
1086 {
1087     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, >
205, 0, "%d", valresta.suma - 1);
1088     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, >
330, 0, "%d", valresta.suma);
1089     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, >
455, 0, "%d", valresta.suma + 1);
1090     al_flip_display();
1091     al_flush_event_queue(event_queue);
1092
1093     if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
1094     {
1095         if ((event.mouse.button & 1) && (event.mouse.x >=
291) && (event.mouse.x <= (509)) && (event.mouse.y >=
175) && (event.mouse.y <= 275))
1096         {
```

```
1097             al_play_sample_instance(ins_bo);
1098             vidas = vidas - 1;
1099             printf("Vidas restantes: %d", vidas);
1100             valresta = funcionresta(1);
1101             randomum = rand() % 3 + 1;
1102             if (vidas == 0)
1103             {
1104                 menu_state = 17;
1105             }
1106         }
1107
1108         if ((event.mouse.button & 1) && (event.mouse.x >=      ↵
291) && (event.mouse.x <= (509)) && (event.mouse.y >=      ↵
300) && (event.mouse.y <= 400))
1109         {
1110             al_play_sample_instance(ins_bo);
1111             contador = contador + 1;
1112             printf("%d\n", contador);
1113             valresta = funcionresta(1);
1114             randomum = rand() % 3 + 1;
1115             if (contador == 15)
1116             {
1117                 resta1 = true;
1118                 menu_state = 18;
1119             }
1120         }
1121
1122         if ((event.mouse.button & 1) && (event.mouse.x >=      ↵
291) && (event.mouse.x <= (509)) && (event.mouse.y >=      ↵
425) && (event.mouse.y <= 525))
1123         {
1124             al_play_sample_instance(ins_bo);
1125             vidas = vidas - 1;
1126             printf("Vidas restantes: %d", vidas);
1127             valresta = funcionresta(1);
1128             randomum = rand() % 3 + 1;
1129             if (vidas == 0)
1130             {
1131                 menu_state = 17;
1132             }
1133         }
1134         if ((event.mouse.button & 1) && (event.mouse.x >= 0)      ↵
&& (event.mouse.x <= (72)) && (event.mouse.y >= 0) &&      ↵
(event.mouse.y <= 36))
1135         {
1136             al_play_sample_instance(ins_bo);
1137             menu_state = menu_state - 1;
1138         }
1139     }
```

```
1140         }
1141     else if (randomum == 3)
1142     {
1143         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, ↵
1144             205, 0, "%d", valresta.suma + 1);
1145         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, ↵
1146             330, 0, "%d", valresta.suma - 1);
1147         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, ↵
1148             455, 0, "%d", valresta.suma);
1149         al_flip_display();
1150         al_flush_event_queue(event_queue);
1151
1152         if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
1153         {
1154             if ((event.mouse.button & 1) && (event.mouse.x >= ↵
1155                 291) && (event.mouse.x <= (509)) && (event.mouse.y >= ↵
1156                 175) && (event.mouse.y <= 275))
1157             {
1158                 al_play_sample_instance(ins_bo);
1159                 vidas = vidas - 1;
1160                 printf("Vidas restantes: %d", vidas);
1161                 valresta = funcionresta(1);
1162                 randomum = rand() % 3 + 1;
1163                 if (vidas == 0)
1164                 {
1165                     menu_state = 17;
1166                 }
1167             }
1168             if ((event.mouse.button & 1) && (event.mouse.x >= ↵
1169                 291) && (event.mouse.x <= (509)) && (event.mouse.y >= ↵
1170                 300) && (event.mouse.y <= 400))
1171             {
1172                 al_play_sample_instance(ins_bo);
1173                 vidas = vidas - 1;
1174                 printf("Vidas restantes: %d", vidas);
1175                 valresta = funcionresta(1);
1176                 randomum = rand() % 3 + 1;
1177                 if (vidas == 0)
1178                 {
1179                     menu_state = 17;
1180                 }
1181             }
1182             if ((event.mouse.button & 1) && (event.mouse.x >= ↵
1183                 291) && (event.mouse.x <= (509)) && (event.mouse.y >= ↵
1184                 425) && (event.mouse.y <= 525))
1185             {
1186                 al_play_sample_instance(ins_bo);
1187             }
1188         }
1189     }
```

```
1180                     contador = contador + 1;
1181                     printf("%d\n", contador);
1182                     valresta = funcionresta(1);
1183                     randomum = rand() % 3 + 1;
1184                     if (contador == 15)
1185                     {
1186                         restal = true;
1187                         menu_state = 18;
1188                     }
1189                 }
1190                 if ((event.mouse.button & 1) && (event.mouse.x >= 0) ↵
1191                   && (event.mouse.x <= (72)) && (event.mouse.y >= 0) && ↵
1192                   (event.mouse.y <= 36))
1193                 {
1194                     al_play_sample_instance(ins_bo);
1195                     menu_state = menu_state - 1;
1196                 }
1197             }
1198             else if (menu_state == 7) //Resta lvl 2
1199             {
1200                 al_draw_bitmap(fondo, 0, 0, 0);
1201                 //Rectangulos para el texto
1202                 al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight, ↵
1203                               217, 32, imageWidth * 1.6, imageHeight * 1, 0);
1204                 //Rectangulos respuestas
1205                 al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight, ↵
1206                               300, 175, imageWidth* scale, imageHeight* scale, 0);
1207                 al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight, ↵
1208                               300, 300, imageWidth* scale, imageHeight* scale, 0);
1209                 al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight, ↵
1210                               300, 425, imageWidth* scale, imageHeight* scale, 0);
1211                 al_draw_scaled_bitmap(img_volver, 0, 0, imageWidth, ↵
1212                               imageHeight, 0, 0, imageWidth * 0.3, imageHeight * 0.3, 0);
1213                 //Texto
1214                 al_draw_text(font20Bold, al_map_rgb(255, 255, 255), 250, 50, ↵
1215                               0, "Cual es el resultado de esta resta?");
1216                 al_draw_textf(font20Bold, al_map_rgb(255, 255, 255), 385, ↵
1217                               100, 0, "%d - %d", valresta2.val1, valresta2.val2);
1218                 al_draw_textf(font20Bold, al_map_rgb(255, 0, 255), 650, 50, ↵
1219                               0, "Aciertos: %d", contador);
1220                 al_draw_textf(font20Bold, al_map_rgb(255, 0, 255), 600, 25, ↵
1221                               0, "Vidas restantes: %d", vidas);
1222                 //al_draw_scaled_bitmap(img_suma, 0, 0, imageWidth, ↵
1223                               imageHeight, 100, 175, imageWidth * scale, imageHeight * ↵
1224                               scale, 0);
1225                 al_flip_display();
1226                 al_flush_event_queue(event_queue);
```

```
1216         //printf("%d, %d, %d\n", valresta.val1, valresta.val2,      ↵
1217             valresta.suma);
1218
1219
1220     if (randomum == 1)
1221     {
1222         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, ↵
1223             205, 0, "%d", valresta2.suma);
1224         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, ↵
1225             330, 0, "%d", valresta2.suma + 1);
1226         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, ↵
1227             455, 0, "%d", valresta2.suma - 1);
1228         al_flip_display();
1229         al_flush_event_queue(event_queue);
1230
1231         if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
1232         {
1233             if ((event.mouse.button & 1) && (event.mouse.x >=      ↵
1234                 291) && (event.mouse.x <= (509)) && (event.mouse.y >=      ↵
1235                 175) && (event.mouse.y <= 275))
1236             {
1237                 al_play_sample_instance(ins_bo);
1238                 contador = contador + 1;
1239                 printf("%d\n", contador);
1240                 valresta2 = funcionresta(2);
1241                 randomum = rand() % 3 + 1;
1242                 if (contador == 15)
1243                 {
1244                     resta2 = true;
1245                     menu_state = 18;
1246                 }
1247
1248             if ((event.mouse.button & 1) && (event.mouse.x >=      ↵
1249                 291) && (event.mouse.x <= (509)) && (event.mouse.y >=      ↵
1250                 300) && (event.mouse.y <= 400))
1251             {
1252                 al_play_sample_instance(ins_bo);
1253                 vidas = vidas - 1;
1254                 printf("Vidas restantes: %d", vidas);
1255                 valresta2 = funcionresta(2);
1256                 randomum = rand() % 3 + 1;
1257                 if (vidas == 0)
1258                 {
1259                     menu_state = 17;
1260                 }
1261             }
```

```
1257             if ((event.mouse.button & 1) && (event.mouse.x >= 291) && (event.mouse.x <= (509)) && (event.mouse.y >= 425) && (event.mouse.y <= 525))
1258         {
1259             al_play_sample_instance(ins_bo);
1260             vidas = vidas - 1;
1261             printf("Vidas restantes: %d", vidas);
1262             valresta2 = funcionresta(2);
1263             randomum = rand() % 3 + 1;
1264             if (vidas == 0)
1265             {
1266                 menu_state = 17;
1267             }
1268         }
1269         if ((event.mouse.button & 1) && (event.mouse.x >= 0) && (event.mouse.x <= (72)) && (event.mouse.y >= 0) && (event.mouse.y <= 36))
1270     {
1271         al_play_sample_instance(ins_bo);
1272         menu_state = menu_state - 2;
1273     }
1274 }
1275 }
1276 else if (randomum == 2)
1277 {
1278     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, 205, 0, "%d", valresta2.suma - 1);
1279     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, 330, 0, "%d", valresta2.suma);
1280     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, 445, 0, "%d", valresta2.suma + 1);
1281     al_flip_display();
1282     al_flush_event_queue(event_queue);
1283
1284     if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
1285     {
1286         if ((event.mouse.button & 1) && (event.mouse.x >= 291) && (event.mouse.x <= (509)) && (event.mouse.y >= 175) && (event.mouse.y <= 275))
1287     {
1288         al_play_sample_instance(ins_bo);
1289         vidas = vidas - 1;
1290         printf("Vidas restantes: %d", vidas);
1291         valresta2 = funcionresta(2);
1292         randomum = rand() % 3 + 1;
1293         if (vidas == 0)
1294         {
1295             menu_state = 17;
1296         }
```

```
1297         }
1298
1299         if ((event.mouse.button & 1) && (event.mouse.x >= 291) && (event.mouse.x <= (509)) && (event.mouse.y >= 300) && (event.mouse.y <= 400))
1300     {
1301         al_play_sample_instance(ins_bo);
1302         contador = contador + 1;
1303         printf("%d\n", contador);
1304         valresta2 = funcionresta(2);
1305         randomum = rand() % 3 + 1;
1306         if (contador == 15)
1307     {
1308         resta2 = true;
1309         menu_state = 18;
1310     }
1311 }
1312
1313         if ((event.mouse.button & 1) && (event.mouse.x >= 291) && (event.mouse.x <= (509)) && (event.mouse.y >= 425) && (event.mouse.y <= 525))
1314     {
1315         al_play_sample_instance(ins_bo);
1316         vidas = vidas - 1;
1317         printf("Vidas restantes: %d", vidas);
1318         valresta2 = funcionresta(2);
1319         randomum = rand() % 3 + 1;
1320         if (vidas == 0)
1321     {
1322         menu_state = 17;
1323     }
1324 }
1325         if ((event.mouse.button & 1) && (event.mouse.x >= 0) && (event.mouse.x <= (72)) && (event.mouse.y >= 0) && (event.mouse.y <= 36))
1326     {
1327         al_play_sample_instance(ins_bo);
1328         menu_state = menu_state - 2;
1329     }
1330 }
1331 }
1332 else if (randomum == 3)
1333 {
1334     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, 205, 0, "%d", valresta2.suma + 1);
1335     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, 330, 0, "%d", valresta2.suma - 1);
1336     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, 455, 0, "%d", valresta2.suma);
```

```
1337         al_flip_display();
1338         al_flush_event_queue(event_queue);
1339
1340         if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
1341     {
1342             if ((event.mouse.button & 1) && (event.mouse.x >=
291) && (event.mouse.x <= (509)) && (event.mouse.y >=
175) && (event.mouse.y <= 275))
1343         {
1344             al_play_sample_instance(ins_bo);
1345             vidas = vidas - 1;
1346             printf("Vidas restantes: %d", vidas);
1347             valresta2 = funcionresta(2);
1348             randomum = rand() % 3 + 1;
1349             if (vidas == 0)
1350             {
1351                 menu_state = 17;
1352             }
1353         }
1354
1355         if ((event.mouse.button & 1) && (event.mouse.x >=
291) && (event.mouse.x <= (509)) && (event.mouse.y >=
300) && (event.mouse.y <= 400))
1356     {
1357         al_play_sample_instance(ins_bo);
1358         vidas = vidas - 1;
1359         printf("Vidas restantes: %d", vidas);
1360         valresta2 = funcionresta(2);
1361         randomum = rand() % 3 + 1;
1362         if (vidas == 0)
1363         {
1364             menu_state = 17;
1365         }
1366     }
1367
1368         if ((event.mouse.button & 1) && (event.mouse.x >=
291) && (event.mouse.x <= (509)) && (event.mouse.y >=
425) && (event.mouse.y <= 525))
1369     {
1370         al_play_sample_instance(ins_bo);
1371         contador = contador + 1;
1372         printf("%d\n", contador);
1373         valresta2 = funcionresta(2);
1374         randomum = rand() % 3 + 1;
1375         if (contador == 15)
1376         {
1377             resta2 = true;
1378             menu_state = 18;
1379         }
```

```
1380         }
1381         if ((event.mouse.button & 1) && (event.mouse.x >= 0) ↵
1382             && (event.mouse.x <= (72)) && (event.mouse.y >= 0) &&
1383             (event.mouse.y <= 36))
1384             {
1385                 al_play_sample_instance(ins_bo);
1386                 menu_state = menu_state - 2;
1387             }
1388         }
1389     else if (menu_state == 8) //Resta lvl 3
1390     {
1391         al_draw_bitmap(fondo, 0, 0, 0);
1392         //Rectangulos para el texto
1393         al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight, ↵
1394             217, 32, imageWidth * 1.6, imageHeight * 1, 0);
1395         //Rectangulos respuestas
1396         al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight, ↵
1397             300, 175, imageWidth* scale, imageHeight* scale, 0);
1398         al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight, ↵
1399             300, 300, imageWidth* scale, imageHeight* scale, 0);
1400         al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight, ↵
1401             300, 425, imageWidth* scale, imageHeight* scale, 0);
1402         al_draw_scaled_bitmap(img_volver, 0, 0, imageWidth,
1403             imageHeight, 0, 0, imageWidth * 0.3, imageHeight * 0.3, 0);
1404         //Texto
1405         al_draw_text(font20Bold, al_map_rgb(255, 0, 255), 250, 50, 0, ↵
1406             "Cual es el resultado de esta resta?");
1407         al_draw_textf(font20Bold, al_map_rgb(255, 0, 255), 385, 100, ↵
1408             0, "%d - %d", valresta3.val1, valresta3.val2);
1409         al_draw_textf(font20Bold, al_map_rgb(255, 0, 255), 650, 50, ↵
1410             0, "Aciertos: %d", contador);
1411         al_draw_textf(font20Bold, al_map_rgb(255, 0, 255), 600, 25, ↵
1412             0, "Vidas restantes: %d", vidas);
1413         //al_draw_scaled_bitmap(img_suma, 0, 0, imageWidth,
1414             imageHeight, 100, 175, imageWidth * scale, imageHeight * ↵
1415             scale, 0);
1416         al_flip_display();
1417         al_flush_event_queue(event_queue);
1418         //printf("%d, %d, %d\n", valresta.val1, valresta.val2,
1419             valresta.suma);
1420         printf("randomum = %d\n", randomum);
1421
1422         if (randomum == 1)
1423         {
1424             al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, ↵
1425                 205, 0, "%d", valresta3.suma);
```

```
1414         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, ↵
1415             330, 0, "%d", valresta3.suma + 1);
1416         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, ↵
1417             455, 0, "%d", valresta3.suma - 1);
1418         al_flip_display();
1419         al_flush_event_queue(event_queue);
1420
1421     if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
1422     {
1423         if ((event.mouse.button & 1) && (event.mouse.x >= 291) && (event.mouse.x <= (509)) && (event.mouse.y >= 175) && (event.mouse.y <= 275))
1424         {
1425             al_play_sample_instance(ins_bo);
1426             contador = contador + 1;
1427             printf("%d\n", contador);
1428             valresta3 = funcionresta(3);
1429             randomum = rand() % 3 + 1;
1430             if (contador == 15)
1431             {
1432                 resta3 = true;
1433                 menu_state = 18;
1434             }
1435         if ((event.mouse.button & 1) && (event.mouse.x >= 291) && (event.mouse.x <= (509)) && (event.mouse.y >= 300) && (event.mouse.y <= 400))
1436         {
1437             al_play_sample_instance(ins_bo);
1438             vidas = vidas - 1;
1439             printf("Vidas restantes: %d", vidas);
1440             valresta3 = funcionresta(3);
1441             randomum = rand() % 3 + 1;
1442             if (vidas == 0)
1443             {
1444                 menu_state = 17;
1445             }
1446         }
1447
1448         if ((event.mouse.button & 1) && (event.mouse.x >= 291) && (event.mouse.x <= (509)) && (event.mouse.y >= 425) && (event.mouse.y <= 525))
1449         {
1450             al_play_sample_instance(ins_bo);
1451             vidas = vidas - 1;
1452             printf("Vidas restantes: %d", vidas);
1453             valresta3 = funcionresta(3);
1454             randomum = rand() % 3 + 1;
```

```
1455             if (vidas == 0)
1456             {
1457                 menu_state = 17;
1458             }
1459         }
1460         if ((event.mouse.button & 1) && (event.mouse.x >= 0) ↵
1461             && (event.mouse.x <= (72)) && (event.mouse.y >= 0) && ↵
1462             (event.mouse.y <= 36))
1463             {
1464                 al_play_sample_instance(ins_bo);
1465                 menu_state = menu_state - 3;
1466             }
1467         }
1468     else if (randomum == 2)
1469     {
1470         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, ↵
1471             205, 0, "%d", valresta3.suma - 1);
1472         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, ↵
1473             330, 0, "%d", valresta3.suma);
1474         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, ↵
1475             455, 0, "%d", valresta3.suma + 1);
1476         al_flip_display();
1477         al_flush_event_queue(event_queue);
1478
1479         if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
1480         {
1481             if ((event.mouse.button & 1) && (event.mouse.x >= 291) ↵
1482                 && (event.mouse.x <= (509)) && (event.mouse.y >= 175) ↵
1483                 && (event.mouse.y <= 275))
1484             {
1485                 al_play_sample_instance(ins_bo);
1486                 vidas = vidas - 1;
1487                 printf("Vidas restantes: %d", vidas);
1488                 valresta3 = funcionresta(3);
1489                 randomum = rand() % 3 + 1;
1490                 if (vidas == 0)
1491                 {
1492                     menu_state = 17;
1493                 }
1494             }
1495
1496             if ((event.mouse.button & 1) && (event.mouse.x >= 291) ↵
1497                 && (event.mouse.x <= (509)) && (event.mouse.y >= 300) ↵
1498                 && (event.mouse.y <= 400))
1499             {
1500                 al_play_sample_instance(ins_bo);
1501                 contador = contador + 1;
1502                 printf("%d\n", contador);
```

```
1495             valresta3 = funcionresta(3);
1496             randomum = rand() % 3 + 1;
1497             if (contador == 15)
1498             {
1499                 resta3 = true;
1500                 menu_state = 18;
1501             }
1502         }
1503
1504         if ((event.mouse.button & 1) && (event.mouse.x >=
291) && (event.mouse.x <= (509)) && (event.mouse.y >=
425) && (event.mouse.y <= 525))
1505         {
1506             al_play_sample_instance(ins_bo);
1507             vidas = vidas - 1;
1508             printf("Vidas restantes: %d", vidas);
1509             valresta3 = funcionresta(3);
1510             randomum = rand() % 3 + 1;
1511             if (vidas == 0)
1512             {
1513                 menu_state = 17;
1514             }
1515         }
1516         if ((event.mouse.button & 1) && (event.mouse.x >= 0) &
& (event.mouse.x <= (72)) && (event.mouse.y >= 0) &&
(event.mouse.y <= 36))
1517         {
1518             al_play_sample_instance(ins_bo);
1519             menu_state = menu_state - 3;
1520         }
1521     }
1522 }
1523 else if (randomum == 3)
1524 {
1525     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, >
205, 0, "%d", valresta3.suma + 1);
1526     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, >
330, 0, "%d", valresta3.suma - 1);
1527     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, >
455, 0, "%d", valresta3.suma);
1528     al_flip_display();
1529     al_flush_event_queue(event_queue);
1530
1531     if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
1532     {
1533         if ((event.mouse.button & 1) && (event.mouse.x >=
291) && (event.mouse.x <= (509)) && (event.mouse.y >=
175) && (event.mouse.y <= 275))
1534         {
```

```
1535             al_play_sample_instance(ins_bo);
1536             vidas = vidas - 1;
1537             printf("Vidas restantes: %d", vidas);
1538             valresta3 = funcionresta(3);
1539             randomum = rand() % 3 + 1;
1540             if (vidas == 0)
1541             {
1542                 menu_state = 17;
1543             }
1544         }
1545
1546         if ((event.mouse.button & 1) && (event.mouse.x >= 291) && (event.mouse.x <= (509)) && (event.mouse.y >= 300) && (event.mouse.y <= 400))
1547         {
1548             al_play_sample_instance(ins_bo);
1549             vidas = vidas - 1;
1550             printf("Vidas restantes: %d", vidas);
1551             valresta3 = funcionresta(3);
1552             randomum = rand() % 3 + 1;
1553             if (vidas == 0)
1554             {
1555                 menu_state = 17;
1556             }
1557         }
1558
1559         if ((event.mouse.button & 1) && (event.mouse.x >= 291) && (event.mouse.x <= (509)) && (event.mouse.y >= 425) && (event.mouse.y <= 525))
1560         {
1561             al_play_sample_instance(ins_bo);
1562             contador = contador + 1;
1563             printf("%d\n", contador);
1564             valresta3 = funcionresta(3);
1565             randomum = rand() % 3 + 1;
1566             if (contador == 15)
1567             {
1568                 resta3 = true;
1569                 menu_state = 18;
1570             }
1571         }
1572         if ((event.mouse.button & 1) && (event.mouse.x >= 0) && (event.mouse.x <= (72)) && (event.mouse.y >= 0) && (event.mouse.y <= 36))
1573         {
1574             al_play_sample_instance(ins_bo);
1575             menu_state = menu_state - 3;
1576         }
1577     }
```

```
1578         }
1579     }
1580     else if (menu_state == 9)//Niveles multiplicacion
1581     {
1582         al_draw_bitmap(fondo, 0, 0, 0);
1583         al_draw_scaled_bitmap(img_suma1, 0, 0, imageWidth,
1584             imageHeight, (WIDTH / 2 - 110), 175, imageWidth* scale,
1585             imageHeight* scale, 0);
1586         al_draw_scaled_bitmap(img_suma2, 0, 0, imageWidth,
1587             imageHeight, (WIDTH / 2 - 110), 300, imageWidth* scale,
1588             imageHeight* scale, 0);
1589         al_draw_scaled_bitmap(img_suma3, 0, 0, imageWidth,
1590             imageHeight, (WIDTH / 2 - 110), 425, imageWidth* scale,
1591             imageHeight* scale, 0);
1592         al_draw_scaled_bitmap(img_volver, 0, 0, imageWidth,
1593             imageHeight, 0, 0, imageWidth * 0.3, imageHeight * 0.3, 0);
1594         if (multi1 == true)
1595         {
1596             al_draw_scaled_bitmap(img_check, 0, 0, checkwidth,
1597                 checkheight, 500, 185, 65, 65, 0);
1598         }
1599         if (multi2 == true)
1600         {
1601             al_draw_scaled_bitmap(img_check, 0, 0, checkwidth,
1602                 checkheight, 500, 315, 65, 65, 0);
1603         }
1604         if (multi3 == true)
1605         {
1606             al_draw_scaled_bitmap(img_check, 0, 0, checkwidth,
1607                 checkheight, 500, 440, 65, 65, 0);
1608         }
1609         al_flip_display();
1610         al_flush_event_queue(event_queue);
1611         vidas = 3;
1612         if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
1613         {
1614             if ((event.mouse.button & 1) && (event.mouse.x >= 291) &&
1615                 (event.mouse.x <= (481)) && (event.mouse.y >= 175) &&
1616                 (event.mouse.y <= 275))
1617             {
1618                 al_play_sample_instance(ins_bo);
1619                 menu_state = 10;
1620             }
1621             if ((event.mouse.button & 1) && (event.mouse.x >= 291) &&
1622                 (event.mouse.x <= (481)) && (event.mouse.y >= 300) &&
1623                 (event.mouse.y <= 400))
1624             {
```

```
1613                     al_play_sample_instance(ins_bo);
1614                     menu_state = 11;
1615                 }
1616
1617             if ((event.mouse.button & 1) && (event.mouse.x >= 291) && ↵
1618                 (event.mouse.x <= (481)) && (event.mouse.y >= 425) && ↵
1619                 (event.mouse.y <= 525))
1620             {
1621                 al_play_sample_instance(ins_bo);
1622                 menu_state = 12;
1623             }
1624
1625             if ((event.mouse.button & 1) && (event.mouse.x >= 0) && ↵
1626                 (event.mouse.x <= (72)) && (event.mouse.y >= 0) && ↵
1627                 (event.mouse.y <= 36))
1628             {
1629                 al_play_sample_instance(ins_bo);
1630                 menu_state = 0;
1631             }
1632         }
1633     }
1634     else if (menu_state == 10)//Multiplicacion lvl 1
1635     {
1636         al_draw_bitmap(fondo, 0, 0, 0);
1637         //Rectangulos para el texto
1638         al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight,
1639                               217, 32, imageWidth * 1.6, imageHeight * 1, 0);
1640         //Rectangulos respuestas
1641         al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight,
1642                               300, 175, imageWidth* scale, imageHeight* scale, 0);
1643         al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight,
1644                               300, 300, imageWidth* scale, imageHeight* scale, 0);
1645         al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight,
1646                               300, 425, imageWidth* scale, imageHeight* scale, 0);
1647         al_draw_scaled_bitmap(img_volver, 0, 0, imageWidth,
1648                               imageHeight, 0, 0, imageWidth * 0.3, imageHeight * 0.3, 0);
1649         //Texto
1650         al_draw_text(font, al_map_rgb(255, 255, 255), 260, 55, 0,
1651                     "Cual es el resultado de esta multiplicacion?");
1652         al_draw_textf(font, al_map_rgb(255, 255, 255), 385, 100, 0,
1653                     "%d x %d", valmulti.val1, valmulti.val2);
1654         al_draw_textf(font20Bold, al_map_rgb(255, 0, 255), 650, 50,
1655                     0, "Aciertos: %d", contador);
1656         al_draw_textf(font20Bold, al_map_rgb(255, 0, 255), 600, 25,
1657                     0, "Vidas restantes: %d", vidas);
1658         //al_draw_scaled_bitmap(img_suma, 0, 0, imageWidth,
1659                               imageHeight, 100, 175, imageWidth * scale, imageHeight *
1660                               scale, 0);
1661         al_flip_display();
```

```
1647         al_flush_event_queue(event_queue);
1648
1649
1650     if (randonum == 1)
1651     {
1652         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, ↵
1653             205, 0, "%d", valmulti.suma);
1654         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, ↵
1655             330, 0, "%d", valmulti.suma + 1);
1656         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, ↵
1657             455, 0, "%d", valmulti.suma - 1);
1658         al_flip_display();
1659         al_flush_event_queue(event_queue);
1660
1661     if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
1662     {
1663         if ((event.mouse.button & 1) && (event.mouse.x >=      ↵
1664             291) && (event.mouse.x <= (509)) && (event.mouse.y >=      ↵
1665             175) && (event.mouse.y <= 275))
1666         {
1667             al_play_sample_instance(ins_bo);
1668             contador = contador + 1;
1669             printf("%d\n", contador);
1670             valmulti = funcionmulti(1);
1671             randomum = rand() % 3 + 1;
1672             if (contador == 15)
1673             {
1674                 multil = true;
1675                 menu_state = 18;
1676             }
1677
1678         if ((event.mouse.button & 1) && (event.mouse.x >=      ↵
1679             291) && (event.mouse.x <= (509)) && (event.mouse.y >=      ↵
1680             300) && (event.mouse.y <= 400))
1681         {
1682             al_play_sample_instance(ins_bo);
1683             vidas = vidas - 1;
1684             printf("Vidas restantes: %d", vidas);
1685             valmulti = funcionmulti(1);
1686             randomum = rand() % 3 + 1;
1687             if (vidas == 0)
1688             {
1689                 menu_state = 17;
1690             }
1691
1692         if ((event.mouse.button & 1) && (event.mouse.x >=      ↵
1693             291) && (event.mouse.x <= (509)) && (event.mouse.y >=      ↵
```

```
425) && (event.mouse.y <= 525))
1688     {
1689         al_play_sample_instance(ins_bo);
1690         vidas = vidas - 1;
1691         printf("Vidas restantes: %d\n", vidas);
1692         valmulti = funcionmulti(1);
1693         randomum = rand() % 3 + 1;
1694         if (vidas == 0)
1695         {
1696             menu_state = 17;
1697         }
1698     }
1699     if ((event.mouse.button & 1) && (event.mouse.x >= 0) ↵
&& (event.mouse.x <= (72)) && (event.mouse.y >= 0) && ↵
(event.mouse.y <= 36))
1700     {
1701         al_play_sample_instance(ins_bo);
1702         menu_state = menu_state - 1;
1703     }
1704 }
1705 }
1706 else if (randomum == 2)
1707 {
1708     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, ↵
205, 0, "%d", valmulti.suma - 1);
1709     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, ↵
330, 0, "%d", valmulti.suma);
1710     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, ↵
455, 0, "%d", valmulti.suma + 1);
1711     al_flip_display();
1712     al_flush_event_queue(event_queue);
1713
1714     if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
1715     {
1716         if ((event.mouse.button & 1) && (event.mouse.x >= ↵
291) && (event.mouse.x <= (509)) && (event.mouse.y >= ↵
175) && (event.mouse.y <= 275))
1717         {
1718             al_play_sample_instance(ins_bo);
1719             vidas = vidas - 1;
1720             printf("Vidas restantes: %d", vidas);
1721             valmulti = funcionmulti(1);
1722             randomum = rand() % 3 + 1;
1723             if (vidas == 0)
1724             {
1725                 menu_state = 17;
1726             }
1727         }
1728     }
```

```
1729             if ((event.mouse.button & 1) && (event.mouse.x >= 291) && (event.mouse.x <= (509)) && (event.mouse.y >= 300) && (event.mouse.y <= 400))
1730         {
1731             al_play_sample_instance(ins_bo);
1732             contador = contador + 1;
1733             printf("%d\n", contador);
1734             valmulti = funcionmulti(1);
1735             randomum = rand() % 3 + 1;
1736             if (contador == 15)
1737             {
1738                 multi1 = true;
1739                 menu_state = 18;
1740             }
1741         }
1742
1743         if ((event.mouse.button & 1) && (event.mouse.x >= 291) && (event.mouse.x <= (509)) && (event.mouse.y >= 425) && (event.mouse.y <= 525))
1744     {
1745         al_play_sample_instance(ins_bo);
1746         vidas = vidas - 1;
1747         printf("Vidas restantes: %d", vidas);
1748         valmulti = funcionmulti(1);
1749         randomum = rand() % 3 + 1;
1750         if (vidas == 0)
1751         {
1752             menu_state = 17;
1753         }
1754     }
1755     if ((event.mouse.button & 1) && (event.mouse.x >= 0) && (event.mouse.x <= (72)) && (event.mouse.y >= 0) && (event.mouse.y <= 36))
1756     {
1757         al_play_sample_instance(ins_bo);
1758         menu_state = menu_state - 1;
1759     }
1760 }
1761 }
1762 else if (randomum == 3)
1763 {
1764     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, 205, 0, "%d", valmulti.suma + 1);
1765     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, 330, 0, "%d", valmulti.suma - 1);
1766     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, 455, 0, "%d", valmulti.suma);
1767     al_flip_display();
1768     al_flush_event_queue(event_queue);
```

```
1769
1770         if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
1771     {
1772         if ((event.mouse.button & 1) && (event.mouse.x >=
291) && (event.mouse.x <= (509)) && (event.mouse.y >=
175) && (event.mouse.y <= 275))
1773     {
1774         al_play_sample_instance(ins_bo);
1775         vidas = vidas - 1;
1776         printf("Vidas restantes: %d", vidas);
1777         valmulti = funcionmulti(1);
1778         randomum = rand() % 3 + 1;
1779         if (vidas == 0)
1780         {
1781             menu_state = 17;
1782         }
1783     }
1784
1785         if ((event.mouse.button & 1) && (event.mouse.x >=
291) && (event.mouse.x <= (509)) && (event.mouse.y >=
300) && (event.mouse.y <= 400))
1786     {
1787         al_play_sample_instance(ins_bo);
1788         vidas = vidas - 1;
1789         printf("Vidas restantes: %d", vidas);
1790         valmulti = funcionmulti(1);
1791         randomum = rand() % 3 + 1;
1792         if (vidas == 0)
1793         {
1794             menu_state = 17;
1795         }
1796     }
1797
1798         if ((event.mouse.button & 1) && (event.mouse.x >=
291) && (event.mouse.x <= (509)) && (event.mouse.y >=
425) && (event.mouse.y <= 525))
1799     {
1800         al_play_sample_instance(ins_bo);
1801         contador = contador + 1;
1802         printf("%d\n", contador);
1803         valmulti = funcionmulti(1);
1804         randomum = rand() % 3 + 1;
1805         if (contador == 15)
1806         {
1807             multil = true;
1808             menu_state = 18;
1809         }
1810     }
1811     if ((event.mouse.button & 1) && (event.mouse.x >= 0)
```

```
        && (event.mouse.x <= (72)) && (event.mouse.y >= 0) && ↵
        (event.mouse.y <= 36))
1812    {
1813        al_play_sample_instance(ins_bo);
1814        menu_state = menu_state - 1;
1815    }
1816}
1817}
1818}
1819else if (menu_state == 11)//Multiplicacion lvl 2
1820{
1821    al_draw_bitmap(fondo, 0, 0, 0);
1822    //Rectangulos para el texto
1823    al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight, ↵
1824        217, 32, imageWidth * 1.6, imageHeight * 1, 0);
1825    //Rectangulos respuestas
1826    al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight, ↵
1827        300, 175, imageWidth* scale, imageHeight* scale, 0);
1828    al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight, ↵
1829        300, 300, imageWidth* scale, imageHeight* scale, 0);
1830    al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight, ↵
1831        300, 425, imageWidth* scale, imageHeight* scale, 0);
1832    al_draw_scaled_bitmap(img_volver, 0, 0, imageWidth,
1833        imageHeight, 0, 0, imageWidth * 0.3, imageHeight * 0.3, 0);
1834    //Texto
1835    al_draw_text(font, al_map_rgb(255, 255, 255), 260, 55, 0, ↵
1836        "Cual es el resultado de esta multiplicacion?");
1837    al_draw_textf(font, al_map_rgb(255, 255, 255), 385, 100, 0, ↵
1838        "%d x %d", valmulti2.val1, valmulti2.val2);
1839    al_draw_textf(font20Bold, al_map_rgb(255, 0, 255), 650, 50, ↵
1840        0, "Aciertos: %d", contador);
1841    al_draw_textf(font20Bold, al_map_rgb(255, 0, 255), 600, 25, ↵
1842        0, "Vidas restantes: %d", vidas);
1843    //al_draw_scaled_bitmap(img_suma, 0, 0, imageWidth,
1844        imageHeight, 100, 175, imageWidth * scale, imageHeight * ↵
1845        scale, 0);
1846    al_flip_display();
1847    al_flush_event_queue(event_queue);

1848
1849    if (randonum == 1)
1850    {
1851        al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, ↵
1852            205, 0, "%d", valmulti2.suma);
1853        al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, ↵
1854            330, 0, "%d", valmulti2.suma + 1);
1855        al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, ↵
1856            455, 0, "%d", valmulti2.suma - 1);
1857        al_flip_display();
```

```
1845         al_flush_event_queue(event_queue);
1846
1847         if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
1848     {
1849             if ((event.mouse.button & 1) && (event.mouse.x >=
291) && (event.mouse.x <= (509)) && (event.mouse.y >=
175) && (event.mouse.y <= 275))
1850         {
1851             al_play_sample_instance(ins_bo);
1852             contador = contador + 1;
1853             printf("%d\n", contador);
1854             valmulti2 = funcionmulti(2);
1855             randomum = rand() % 3 + 1;
1856             if (contador == 15)
1857             {
1858                 multi2 = true;
1859                 menu_state = 18;
1860             }
1861         }
1862
1863         if ((event.mouse.button & 1) && (event.mouse.x >=
291) && (event.mouse.x <= (509)) && (event.mouse.y >=
300) && (event.mouse.y <= 400))
1864     {
1865         al_play_sample_instance(ins_bo);
1866         vidas = vidas - 1;
1867         printf("Vidas restantes: %d", vidas);
1868         valmulti2 = funcionmulti(2);
1869         randomum = rand() % 3 + 1;
1870         if (vidas == 0)
1871         {
1872             menu_state = 17;
1873         }
1874     }
1875
1876         if ((event.mouse.button & 1) && (event.mouse.x >=
291) && (event.mouse.x <= (509)) && (event.mouse.y >=
425) && (event.mouse.y <= 525))
1877     {
1878         al_play_sample_instance(ins_bo);
1879         vidas = vidas - 1;
1880         printf("Vidas restantes: %d\n", vidas);
1881         valmulti2 = funcionmulti(2);
1882         randomum = rand() % 3 + 1;
1883         if (vidas == 0)
1884         {
1885             menu_state = 17;
1886         }
1887     }
```

```
1888         if ((event.mouse.button & 1) && (event.mouse.x >= 0) ↵
1889             && (event.mouse.x <= (72)) && (event.mouse.y >= 0) && ↵
1890                 (event.mouse.y <= 36))
1891         {
1892             al_play_sample_instance(ins_bo);
1893             menu_state = menu_state - 2;
1894         }
1895     }
1896     else if (randomum == 2)
1897     {
1898         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, ↵
1899                     205, 0, "%d", valmulti2.suma - 1);
1900         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, ↵
1901                     330, 0, "%d", valmulti2.suma);
1902         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, ↵
1903                     455, 0, "%d", valmulti2.suma + 1);
1904         al_flip_display();
1905         al_flush_event_queue(event_queue);
1906
1907         if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
1908         {
1909             if ((event.mouse.button & 1) && (event.mouse.x >=      ↵
1910                 291) && (event.mouse.x <= (509)) && (event.mouse.y >=      ↵
1911                     175) && (event.mouse.y <= 275))
1912             {
1913                 al_play_sample_instance(ins_bo);
1914                 vidas = vidas - 1;
1915                 printf("Vidas restantes: %d", vidas);
1916                 valmulti2 = funcionmulti(2);
1917                 randomum = rand() % 3 + 1;
1918                 if (vidas == 0)
1919                 {
1920                     menu_state = 17;
1921                 }
1922             }
1923
1924             if ((event.mouse.button & 1) && (event.mouse.x >=      ↵
1925                 291) && (event.mouse.x <= (509)) && (event.mouse.y >=      ↵
1926                     300) && (event.mouse.y <= 400))
1927             {
1928                 al_play_sample_instance(ins_bo);
1929                 contador = contador + 1;
1930                 printf("%d\n", contador);
1931                 valmulti2 = funcionmulti(2);
1932                 randomum = rand() % 3 + 1;
1933                 if (contador == 15)
1934                 {
1935                     multi2 = true;
```

```
1928                         menu_state = 18;
1929                     }
1930                 }
1931
1932             if ((event.mouse.button & 1) && (event.mouse.x >=
291) && (event.mouse.x <= (509)) && (event.mouse.y >=
425) && (event.mouse.y <= 525))
1933             {
1934                 al_play_sample_instance(ins_bo);
1935                 vidas = vidas - 1;
1936                 printf("Vidas restantes: %d", vidas);
1937                 valmulti2 = funcionmulti(2);
1938                 randomum = rand() % 3 + 1;
1939                 if (vidas == 0)
1940                 {
1941                     menu_state = 17;
1942                 }
1943             }
1944             if ((event.mouse.button & 1) && (event.mouse.x >=
0) && (event.mouse.x <= (72)) && (event.mouse.y >=
0) && (event.mouse.y <= 36))
1945             {
1946                 al_play_sample_instance(ins_bo);
1947                 menu_state = menu_state - 2;
1948             }
1949         }
1950     }
1951     else if (randomum == 3)
1952     {
1953         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, 205, 0, "%d", valmulti2.suma + 1);
1954         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, 330, 0, "%d", valmulti2.suma - 1);
1955         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, 455, 0, "%d", valmulti2.suma);
1956         al_flip_display();
1957         al_flush_event_queue(event_queue);
1958
1959         if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
1960         {
1961             if ((event.mouse.button & 1) && (event.mouse.x >=
291) && (event.mouse.x <= (509)) && (event.mouse.y >=
175) && (event.mouse.y <= 275))
1962             {
1963                 al_play_sample_instance(ins_bo);
1964                 vidas = vidas - 1;
1965                 printf("Vidas restantes: %d", vidas);
1966                 valmulti2 = funcionmulti(2);
1967                 randomum = rand() % 3 + 1;
```

```
1968             if (vidas == 0)
1969             {
1970                 menu_state = 17;
1971             }
1972         }
1973
1974         if ((event.mouse.button & 1) && (event.mouse.x >=
291) && (event.mouse.x <= (509)) && (event.mouse.y >=
300) && (event.mouse.y <= 400))
1975         {
1976             al_play_sample_instance(ins_bo);
1977             vidas = vidas - 1;
1978             printf("Vidas restantes: %d", vidas);
1979             valmulti2 = funcionmulti(2);
1980             randomum = rand() % 3 + 1;
1981             if (vidas == 0)
1982             {
1983                 menu_state = 17;
1984             }
1985         }
1986
1987         if ((event.mouse.button & 1) && (event.mouse.x >=
291) && (event.mouse.x <= (509)) && (event.mouse.y >=
425) && (event.mouse.y <= 525))
1988         {
1989             al_play_sample_instance(ins_bo);
1990             contador = contador + 1;
1991             printf("%d\n", contador);
1992             valmulti2 = funcionmulti(2);
1993             randomum = rand() % 3 + 1;
1994             if (contador == 15)
1995             {
1996                 multi2 = true;
1997                 menu_state = 18;
1998             }
1999         }
2000         if ((event.mouse.button & 1) && (event.mouse.x >= 0) &&
2001             (event.mouse.x <= (72)) && (event.mouse.y >= 0) &&
2002             (event.mouse.y <= 36))
2003         {
2004             al_play_sample_instance(ins_bo);
2005             menu_state = menu_state - 2;
2006         }
2007     }
2008     else if (menu_state == 12)//Multiplicacion lvl 3
2009     {
2010         al_draw_bitmap(fondo, 0, 0, 0);
```

```
2011     //Rectangulos para el texto
2012     al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight,
2013                             217, 32, imageWidth * 1.6, imageHeight * 1, 0);
2013     //Rectangulos respuestas
2014     al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight,
2015                             300, 175, imageWidth* scale, imageHeight* scale, 0);
2015     al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight,
2016                             300, 300, imageWidth* scale, imageHeight* scale, 0);
2016     al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight,
2017                             300, 425, imageWidth* scale, imageHeight* scale, 0);
2017     al_draw_scaled_bitmap(img_volver, 0, 0, imageWidth,
2018                             imageHeight, 0, 0, imageWidth * 0.3, imageHeight * 0.3, 0);
2018     //Texto
2019     al_draw_text(font, al_map_rgb(255, 255, 255), 260, 55, 0,
2020                 "Cual es el resultado de esta multiplicacion?");
2020     al_draw_textf(font, al_map_rgb(255, 255, 255), 385, 100, 0,
2021                 "%d x %d", valmulti3.val1, valmulti3.val2);
2021     al_draw_textf(font20Bold, al_map_rgb(255, 0, 255), 650, 50,
2022                 0, "Aciertos: %d", contador);
2022     al_draw_textf(font20Bold, al_map_rgb(255, 0, 255), 600, 25,
2023                 0, "Vidas restantes: %d", vidas);
2023     //al_draw_scaled_bitmap(img_suma, 0, 0, imageWidth,
2024                             imageHeight, 100, 175, imageWidth * scale, imageHeight *
2025                             scale, 0);
2024     al_flip_display();
2025     al_flush_event_queue(event_queue);

2026
2027
2028     if (randonum == 1)
2029     {
2030         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, 205, 0, "%d", valmulti3.suma);
2031         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, 330, 0, "%d", valmulti3.suma + 1);
2032         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, 455, 0, "%d", valmulti3.suma - 1);
2033         al_flip_display();
2034         al_flush_event_queue(event_queue);

2035
2036     if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
2037     {
2038         if ((event.mouse.button & 1) && (event.mouse.x >= 291) && (event.mouse.x <= (509)) && (event.mouse.y >= 175) && (event.mouse.y <= 275))
2039         {
2040             al_play_sample_instance(ins_bo);
2041             contador = contador + 1;
2042             printf("%d\n", contador);
2043             valmulti3 = funcionmulti(3);
```

```
2044             randomum = rand() % 3 + 1;
2045             if (contador == 15)
2046             {
2047                 multi3 = true;
2048                 menu_state = 18;
2049             }
2050         }
2051
2052         if ((event.mouse.button & 1) && (event.mouse.x >=
291) && (event.mouse.x <= (509)) && (event.mouse.y >=
300) && (event.mouse.y <= 400))
2053         {
2054             al_play_sample_instance(ins_bo);
2055             vidas = vidas - 1;
2056             printf("Vidas restantes: %d", vidas);
2057             valmulti3 = funcionmulti(3);
2058             randomum = rand() % 3 + 1;
2059             if (vidas == 0)
2060             {
2061                 menu_state = 17;
2062             }
2063         }
2064
2065         if ((event.mouse.button & 1) && (event.mouse.x >=
291) && (event.mouse.x <= (509)) && (event.mouse.y >=
425) && (event.mouse.y <= 525))
2066         {
2067             al_play_sample_instance(ins_bo);
2068             vidas = vidas - 1;
2069             printf("Vidas restantes: %d\n", vidas);
2070             valmulti3 = funcionmulti(3);
2071             randomum = rand() % 3 + 1;
2072             if (vidas == 0)
2073             {
2074                 menu_state = 17;
2075             }
2076         }
2077         if ((event.mouse.button & 1) && (event.mouse.x >= 0) &>
&& (event.mouse.x <= (72)) && (event.mouse.y >= 0) &&
(event.mouse.y <= 36))
2078         {
2079             al_play_sample_instance(ins_bo);
2080             menu_state = menu_state - 3;
2081         }
2082     }
2083 }
2084 else if (randomum == 2)
2085 {
2086     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, >
```

```
205, 0, "%d", valmulti3.suma - 1);
2087     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, >
2088         330, 0, "%d", valmulti3.suma);
2088     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, >
2089         455, 0, "%d", valmulti3.suma + 1);
2090     al_flip_display();
2090     al_flush_event_queue(event_queue);
2091
2092     if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
2093     {
2094         if ((event.mouse.button & 1) && (event.mouse.x >=
2094             291) && (event.mouse.x <= (509)) && (event.mouse.y >=
2094             175) && (event.mouse.y <= 275))
2095         {
2096             al_play_sample_instance(ins_bo);
2097             vidas = vidas - 1;
2098             printf("Vidas restantes: %d", vidas);
2099             valmulti3 = funcionmulti(3);
2100             randomum = rand() % 3 + 1;
2101             if (vidas == 0)
2102             {
2103                 menu_state = 17;
2104             }
2105         }
2106
2107         if ((event.mouse.button & 1) && (event.mouse.x >=
2107             291) && (event.mouse.x <= (509)) && (event.mouse.y >=
2107             300) && (event.mouse.y <= 400))
2108         {
2109             al_play_sample_instance(ins_bo);
2110             contador = contador + 1;
2111             printf("%d\n", contador);
2112             valmulti3 = funcionmulti(3);
2113             randomum = rand() % 3 + 1;
2114             if (contador == 15)
2115             {
2116                 multi3 = true;
2117                 menu_state = 18;
2118             }
2119         }
2120
2121         if ((event.mouse.button & 1) && (event.mouse.x >=
2121             291) && (event.mouse.x <= (509)) && (event.mouse.y >=
2121             425) && (event.mouse.y <= 525))
2122         {
2123             al_play_sample_instance(ins_bo);
2124             vidas = vidas - 1;
2125             printf("Vidas restantes: %d", vidas);
2126             valmulti3 = funcionmulti(3);
```

```
2127             randomum = rand() % 3 + 1;
2128             if (vidas == 0)
2129             {
2130                 menu_state = 17;
2131             }
2132         }
2133         if ((event.mouse.button & 1) && (event.mouse.x >= 0) ↵
2134             && (event.mouse.x <= (72)) && (event.mouse.y >= 0) && ↵
2135             (event.mouse.y <= 36))
2136         {
2137             al_play_sample_instance(ins_bo);
2138             menu_state = menu_state - 3;
2139         }
2140     else if (randomum == 3)
2141     {
2142         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, ↵
2143             205, 0, "%d", valmulti3.suma + 1);
2144         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, ↵
2145             330, 0, "%d", valmulti3.suma - 1);
2146         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 380, ↵
2147             455, 0, "%d", valmulti3.suma);
2148         al_flip_display();
2149         al_flush_event_queue(event_queue);
2150
2151     if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
2152     {
2153         if ((event.mouse.button & 1) && (event.mouse.x >= 291) && (event.mouse.x <= (509)) && (event.mouse.y >= 175) && (event.mouse.y <= 275))
2154         {
2155             al_play_sample_instance(ins_bo);
2156             vidas = vidas - 1;
2157             printf("Vidas restantes: %d", vidas);
2158             valmulti3 = funcionmulti(3);
2159             randomum = rand() % 3 + 1;
2160             if (vidas == 0)
2161             {
2162                 menu_state = 17;
2163             }
2164         }
2165         al_play_sample_instance(ins_bo);
2166         vidas = vidas - 1;
```

```
2167                     printf("Vidas restantes: %d", vidas);
2168                     valmulti3 = funcionmulti(3);
2169                     randomum = rand() % 3 + 1;
2170                     if (vidas == 0)
2171                     {
2172                         menu_state = 17;
2173                     }
2174
2175
2176                     if ((event.mouse.button & 1) && (event.mouse.x >=
291) && (event.mouse.x <= (509)) && (event.mouse.y >=
425) && (event.mouse.y <= 525))
2177                     {
2178                         al_play_sample_instance(ins_bo);
2179                         contador = contador + 1;
2180                         printf("%d\n", contador);
2181                         valmulti3 = funcionmulti(3);
2182                         randomum = rand() % 3 + 1;
2183                         if (contador == 15)
2184                         {
2185                             multi3 = true;
2186                             menu_state = 18;
2187                         }
2188                     }
2189                     if ((event.mouse.button & 1) && (event.mouse.x >= 0) &
& (event.mouse.x <= (72)) && (event.mouse.y >= 0) &&
(event.mouse.y <= 36))
2190                     {
2191                         al_play_sample_instance(ins_bo);
2192                         menu_state = menu_state - 3;
2193                     }
2194                 }
2195             }
2196         }
2197     else if (menu_state == 13)//Niveles division
2198     {
2199         al_draw_bitmap(fondo, 0, 0, 0);
2200         al_draw_scaled_bitmap(img_suma1, 0, 0, imageWidth,
imageHeight, (WIDTH / 2 - 110), 175, imageWidth* scale,
imageHeight* scale, 0);
2201         al_draw_scaled_bitmap(img_suma2, 0, 0, imageWidth,
imageHeight, (WIDTH / 2 - 110), 300, imageWidth* scale,
imageHeight* scale, 0);
2202         al_draw_scaled_bitmap(img_suma3, 0, 0, imageWidth,
imageHeight, (WIDTH / 2 - 110), 425, imageWidth* scale,
imageHeight* scale, 0);
2203         al_draw_scaled_bitmap(img_volver, 0, 0, imageWidth,
imageHeight, 0, 0, imageWidth * 0.3, imageHeight * 0.3, 0);
2204         contador = 0;
```

```
2205         if (divi1 == true)
2206         {
2207             al_draw_scaled_bitmap(img_check, 0, 0, checkwidth,
2208                                   checkheight, 500, 185, 65, 65, 0);
2209         }
2210         if (divi2 == true)
2211         {
2212             al_draw_scaled_bitmap(img_check, 0, 0, checkwidth,
2213                                   checkheight, 500, 315, 65, 65, 0);
2214         }
2215         if (divi3 == true)
2216         {
2217             al_draw_scaled_bitmap(img_check, 0, 0, checkwidth,
2218                                   checkheight, 500, 440, 65, 65, 0);
2219         }
2220         al_flip_display();
2221         al_flush_event_queue(event_queue);
2222         vidas = 3;
2223
2224         if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
2225         {
2226             if ((event.mouse.button & 1) && (event.mouse.x >= 291) && ↪
2227                 (event.mouse.x <= (481)) && (event.mouse.y >= 175) && ↪
2228                 (event.mouse.y <= 275))
2229             {
2230                 al_play_sample_instance(ins_bo);
2231                 menu_state = 14;
2232             }
2233
2234             if ((event.mouse.button & 1) && (event.mouse.x >= 291) && ↪
2235                 (event.mouse.x <= (481)) && (event.mouse.y >= 300) && ↪
2236                 (event.mouse.y <= 400))
2237             {
2238                 al_play_sample_instance(ins_bo);
2239                 menu_state = 15;
2240             }
2241
2242             if ((event.mouse.button & 1) && (event.mouse.x >= 0) && ↪
2243                 (event.mouse.x <= (72)) && (event.mouse.y >= 0) && ↪
2244                 (event.mouse.y <= 36))
2245             {
```

```
2243                     al_play_sample_instance(ins_bo);
2244                     menu_state = 0;
2245                 }
2246             }
2247         }
2248     else if (menu_state == 14)//Division lvl 1
2249     {
2250         al_draw_bitmap(fondo, 0, 0, 0);
2251         //Rectangulos para el texto
2252         al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight,    ↵
2253                               217, 32, imageWidth * 1.6, imageHeight * 1, 0);
2254         //Rectangulos respuestas
2255         al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight,    ↵
2256                               300, 175, imageWidth* scale, imageHeight* scale, 0);
2257         al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight,    ↵
2258                               300, 300, imageWidth* scale, imageHeight* scale, 0);
2259         al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight,    ↵
2260                               300, 425, imageWidth* scale, imageHeight* scale, 0);
2261         al_draw_scaled_bitmap(img_volver, 0, 0, imageWidth,
2262                               imageHeight, 0, 0, imageWidth * 0.3, imageHeight * 0.3, 0);
2263         //Texto
2264         al_draw_text(font, al_map_rgb(255, 255, 255), 250, 55, 0,
2265                     "Cual es el resultado ENTERO de esta division?");
2266         al_draw_textf(font, al_map_rgb(255, 255, 255), 385, 100, 0,
2267                     "%d / %d", valdivi.val1, valdivi.val2);
2268         al_draw_textf(font20Bold, al_map_rgb(255, 0, 255), 650, 50,
2269                     0, "Aciertos: %d", contador);
2270         al_draw_textf(font20Bold, al_map_rgb(255, 0, 255), 600, 25,
2271                     0, "Vidas restantes: %d", vidas);
2272         //al_draw_scaled_bitmap(img_suma, 0, 0, imageWidth,
2273                               imageHeight, 100, 175, imageWidth * scale, imageHeight *
2274                               scale, 0);
2275         al_flip_display();
2276         al_flush_event_queue(event_queue);
2277         printf("%d / %d = %.2f", valdivi.val1, valdivi.val2,
2278                valdivi.divi);
2279
2280
2281     if (randonum == 1)
2282     {
2283         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385,    ↵
2284                         205, 0, "%.\f", valdivi.divi);
2285         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385,    ↵
2286                         330, 0, "%.\f", valdivi.divi + 1);
2287         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385,    ↵
2288                         455, 0, "%.\f", valdivi.divi - 1);
2289         al_flip_display();
2290         al_flush_event_queue(event_queue);
2291     }
```

```
2277         if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
2278     {
2279         if ((event.mouse.button & 1) && (event.mouse.x >=
291) && (event.mouse.x <= (509)) && (event.mouse.y >=
291) && (event.mouse.y <= 175))
2280     {
2281         al_play_sample_instance(ins_bo);
2282         contador = contador + 1;
2283         printf("%d\n", contador);
2284         valdivi = funcionaldivi(1);
2285         randomum = rand() % 3 + 1;
2286         if (contador == 15)
2287     {
2288             divi1 = true;
2289             menu_state = 18;
2290         }
2291     }
2292
2293         if ((event.mouse.button & 1) && (event.mouse.x >=
291) && (event.mouse.x <= (509)) && (event.mouse.y >=
300) && (event.mouse.y <= 400))
2294     {
2295         al_play_sample_instance(ins_bo);
2296         vidas = vidas - 1;
2297         printf("Vidas restantes: %d", vidas);
2298         valdivi = funcionaldivi(1);
2299         randomum = rand() % 3 + 1;
2300         if (vidas == 0)
2301     {
2302         menu_state = 17;
2303     }
2304 }
2305
2306         if ((event.mouse.button & 1) && (event.mouse.x >=
291) && (event.mouse.x <= (509)) && (event.mouse.y >=
425) && (event.mouse.y <= 525))
2307     {
2308         al_play_sample_instance(ins_bo);
2309         vidas = vidas - 1;
2310         printf("Vidas restantes: %d\n", vidas);
2311         valdivi = funcionaldivi(1);
2312         randomum = rand() % 3 + 1;
2313         if (vidas == 0)
2314     {
2315         menu_state = 17;
2316     }
2317 }
2318         if ((event.mouse.button & 1) && (event.mouse.x >= 0) &=
& (event.mouse.x <= (72)) && (event.mouse.y >= 0) &&
```

```
2319         (event.mouse.y <= 36))
2320     {
2321         al_play_sample_instance(ins_bo);
2322         menu_state = menu_state - 1;
2323     }
2324 }
2325 else if (randomum == 2)
2326 {
2327     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, ↵
2328     205, 0, "%.\f", valdivi.divi - 1);
2329     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, ↵
2330     330, 0, "%.\f", valdivi.divi);
2331     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, ↵
2332     455, 0, "%.\f", valdivi.divi + 1);
2333     al_flip_display();
2334     al_flush_event_queue(event_queue);
2335
2336     if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
2337     {
2338         if ((event.mouse.button & 1) && (event.mouse.x >=      ↵
2339             291) && (event.mouse.x <= (509)) && (event.mouse.y >=      ↵
2340             175) && (event.mouse.y <= 275))
2341         {
2342             al_play_sample_instance(ins_bo);
2343             vidas = vidas - 1;
2344             printf("Vidas restantes: %d", vidas);
2345             valdivi = funcionaldivi(1);
2346             randomum = rand() % 3 + 1;
2347             if (vidas == 0)
2348             {
2349                 menu_state = 17;
2350             }
2351
2352             if ((event.mouse.button & 1) && (event.mouse.x >=      ↵
2353                 291) && (event.mouse.x <= (509)) && (event.mouse.y >=      ↵
2354                 300) && (event.mouse.y <= 400))
2355             {
2356                 al_play_sample_instance(ins_bo);
2357                 contador = contador + 1;
2358                 printf("%d\n", contador);
2359                 valdivi = funcionaldivi(1);
2360                 randomum = rand() % 3 + 1;
2361                 if (contador == 15)
2362                 {
2363                     divi1 = true;
2364                     menu_state = 18;
2365                 }
2366             }
2367         }
2368     }
2369 }
```

```
2360         }
2361
2362         if ((event.mouse.button & 1) && (event.mouse.x >= 291) && (event.mouse.x <= (509)) && (event.mouse.y >= 425) && (event.mouse.y <= 525))
2363     {
2364         al_play_sample_instance(ins_bo);
2365         vidas = vidas - 1;
2366         printf("Vidas restantes: %d", vidas);
2367         valdivi = funcionaldivi(1);
2368         randomum = rand() % 3 + 1;
2369         if (vidas == 0)
2370     {
2371         menu_state = 17;
2372     }
2373 }
2374 if ((event.mouse.button & 1) && (event.mouse.x >= 0) && (event.mouse.x <= (72)) && (event.mouse.y >= 0) && (event.mouse.y <= 36))
2375 {
2376     al_play_sample_instance(ins_bo);
2377     menu_state = menu_state - 1;
2378 }
2379 }
2380 }
2381 else if (randomum == 3)
2382 {
2383     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, 205, 0, "%.\f", valdivi.divi + 1);
2384     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, 330, 0, "%.\f", valdivi.divi - 1);
2385     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, 455, 0, "%.\f", valdivi.divi);
2386     al_flip_display();
2387     al_flush_event_queue(event_queue);
2388
2389 if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
2390 {
2391     if ((event.mouse.button & 1) && (event.mouse.x >= 291) && (event.mouse.x <= (509)) && (event.mouse.y >= 175) && (event.mouse.y <= 275))
2392     {
2393         al_play_sample_instance(ins_bo);
2394         vidas = vidas - 1;
2395         printf("Vidas restantes: %d", vidas);
2396         valdivi = funcionaldivi(1);
2397         randomum = rand() % 3 + 1;
2398         if (vidas == 0)
2399     {
```

```
2400                         menu_state = 17;
2401                     }
2402                 }
2403
2404             if ((event.mouse.button & 1) && (event.mouse.x >=
291) && (event.mouse.x <= (509)) && (event.mouse.y >=
300) && (event.mouse.y <= 400))
2405             {
2406                 al_play_sample_instance(ins_bo);
2407                 vidas = vidas - 1;
2408                 printf("Vidas restantes: %d", vidas);
2409                 valdivi = funcionaldivi(1);
2410                 randomum = rand() % 3 + 1;
2411                 if (vidas == 0)
2412                 {
2413                     menu_state = 17;
2414                 }
2415             }
2416
2417             if ((event.mouse.button & 1) && (event.mouse.x >=
291) && (event.mouse.x <= (509)) && (event.mouse.y >=
425) && (event.mouse.y <= 525))
2418             {
2419                 al_play_sample_instance(ins_bo);
2420                 contador = contador + 1;
2421                 printf("%d\n", contador);
2422                 valdivi = funcionaldivi(1);
2423                 randomum = rand() % 3 + 1;
2424                 if (contador == 15)
2425                 {
2426                     divi1 = true;
2427                     menu_state = 18;
2428                 }
2429             }
2430             if ((event.mouse.button & 1) && (event.mouse.x >= 0) &
2& (event.mouse.x <= (72)) && (event.mouse.y >= 0) &&
2(event.mouse.y <= 36))
2431             {
2432                 al_play_sample_instance(ins_bo);
2433                 menu_state = menu_state - 1;
2434             }
2435         }
2436     }
2437 }
2438 else if (menu_state == 15)//Division lvl 2
2439 {
2440     al_draw_bitmap(fondo, 0, 0, 0);
2441 //Rectangulos para el texto
2442     al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight, &
```

```
217, 32, imageWidth * 1.6, imageHeight * 1, 0);  
2443 //Rectangulos respuestas  
2444 al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight, 300, 175, imageWidth* scale, imageHeight* scale, 0);  
2445 al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight, 300, 300, imageWidth* scale, imageHeight* scale, 0);  
2446 al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight, 300, 425, imageWidth* scale, imageHeight* scale, 0);  
2447 al_draw_scaled_bitmap(img_volver, 0, 0, imageWidth, imageHeight, 0, 0, imageWidth * 0.3, imageHeight * 0.3, 0);  
2448 //Texto  
2449 al_draw_text(font, al_map_rgb(255, 255, 255), 250, 55, 0, "Cual es el resultado ENTERO de esta division?");  
2450 al_draw_textf(font, al_map_rgb(255, 255, 255), 385, 100, 0, "%d / %d", valdivi2.val1, valdivi2.val2);  
2451 al_draw_textf(font20Bold, al_map_rgb(255, 0, 255), 650, 50, 0, "Aciertos: %d", contador);  
2452 al_draw_textf(font20Bold, al_map_rgb(255, 0, 255), 600, 25, 0, "Vidas restantes: %d", vidas);  
2453 //al_draw_scaled_bitmap(img_suma, 0, 0, imageWidth, imageHeight, 100, 175, imageWidth * scale, imageHeight * scale, 0);  
2454 al_flip_display();  
2455 al_flush_event_queue(event_queue);  
2456  
2457  
2458 if (randonum == 1)  
2459 {  
2460     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, 205, 0, "%.f", valdivi2.divi);  
2461     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, 330, 0, "%.f", valdivi2.divi + 1);  
2462     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, 455, 0, "%.f", valdivi2.divi - 1);  
2463     al_flip_display();  
2464     al_flush_event_queue(event_queue);  
2465  
2466     if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)  
2467     {  
2468         if ((event.mouse.button & 1) && (event.mouse.x >= 291) && (event.mouse.x <= (509)) && (event.mouse.y >= 175) && (event.mouse.y <= 275))  
2469         {  
2470             al_play_sample_instance(ins_bo);  
2471             contador = contador + 1;  
2472             printf("%d\n", contador);  
2473             valdivi2 = funciondivi(2);  
2474             randomum = rand() % 3 + 1;  
2475             if (contador == 15)
```

```
2476         {
2477             divi2 = true;
2478             menu_state = 18;
2479         }
2480     }
2481
2482     if ((event.mouse.button & 1) && (event.mouse.x >= 291) && (event.mouse.x <= (509)) && (event.mouse.y >= 300) && (event.mouse.y <= 400))
2483     {
2484         al_play_sample_instance(ins_bo);
2485         vidas = vidas - 1;
2486         printf("Vidas restantes: %d", vidas);
2487         valdivi2 = funciondivi(2);
2488         randomum = rand() % 3 + 1;
2489         if (vidas == 0)
2490         {
2491             menu_state = 17;
2492         }
2493     }
2494
2495     if ((event.mouse.button & 1) && (event.mouse.x >= 291) && (event.mouse.x <= (509)) && (event.mouse.y >= 425) && (event.mouse.y <= 525))
2496     {
2497         al_play_sample_instance(ins_bo);
2498         vidas = vidas - 1;
2499         printf("Vidas restantes: %d\n", vidas);
2500         valdivi2 = funciondivi(2);
2501         randomum = rand() % 3 + 1;
2502         if (vidas == 0)
2503         {
2504             menu_state = 17;
2505         }
2506     }
2507     if ((event.mouse.button & 1) && (event.mouse.x >= 0) && (event.mouse.x <= (72)) && (event.mouse.y >= 0) && (event.mouse.y <= 36))
2508     {
2509         al_play_sample_instance(ins_bo);
2510         menu_state = menu_state - 2;
2511     }
2512 }
2513 }
2514 else if (randomum == 2)
2515 {
2516     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, 205, 0, "%.\f", valdivi2.divi - 1);
2517     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, 205, 0, "%.\f", valdivi2.divi - 1);
```

```
            330, 0, "%f", valdivi2.divi);
2518        al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, ↵
2519                    455, 0, "%f", valdivi2.divi + 1);
2520        al_flip_display();
2521        al_flush_event_queue(event_queue);

2522        if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
2523        {
2524            if ((event.mouse.button & 1) && (event.mouse.x >= 291) && (event.mouse.x <= (509)) && (event.mouse.y >= 175) && (event.mouse.y <= 275))
2525            {
2526                al_play_sample_instance(ins_bo);
2527                vidas = vidas - 1;
2528                printf("Vidas restantes: %d", vidas);
2529                valdivi2 = funciondivi(2);
2530                randomum = rand() % 3 + 1;
2531                if (vidas == 0)
2532                {
2533                    menu_state = 17;
2534                }
2535            }

2536            if ((event.mouse.button & 1) && (event.mouse.x >= 291) && (event.mouse.x <= (509)) && (event.mouse.y >= 300) && (event.mouse.y <= 400))
2537            {
2538                al_play_sample_instance(ins_bo);
2539                contador = contador + 1;
2540                printf("%d\n", contador);
2541                valdivi2 = funciondivi(2);
2542                randomum = rand() % 3 + 1;
2543                if (contador == 15)
2544                {
2545                    divi2 = true;
2546                    menu_state = 18;
2547                }
2548            }
2549        }

2550        if ((event.mouse.button & 1) && (event.mouse.x >= 291) && (event.mouse.x <= (509)) && (event.mouse.y >= 425) && (event.mouse.y <= 525))
2551        {
2552            al_play_sample_instance(ins_bo);
2553            vidas = vidas - 1;
2554            printf("Vidas restantes: %d", vidas);
2555            valdivi2 = funciondivi(2);
2556            randomum = rand() % 3 + 1;
2557            if (vidas == 0)
```

```
2559          {
2560              menu_state = 17;
2561          }
2562      }
2563      if ((event.mouse.button & 1) && (event.mouse.x >= 0) ↵
2564          && (event.mouse.x <= (72)) && (event.mouse.y >= 0) && ↵
2565          (event.mouse.y <= 36))
2566      {
2567          al_play_sample_instance(ins_bo);
2568          menu_state = menu_state - 2;
2569      }
2570  } else if (randomum == 3)
2571  {
2572      al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, ↵
2573          205, 0, "%.f", valdivi2.divi + 1);
2574      al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, ↵
2575          330, 0, "%.f", valdivi2.divi - 1);
2576      al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, ↵
2577          455, 0, "%.f", valdivi2.divi);
2578      al_flip_display();
2579      al_flush_event_queue(event_queue);
2580
2581      if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
2582      {
2583          if ((event.mouse.button & 1) && (event.mouse.x >= 291) ↵
2584              && (event.mouse.x <= (509)) && (event.mouse.y >= 175) ↵
2585              && (event.mouse.y <= 275))
2586          {
2587              al_play_sample_instance(ins_bo);
2588              vidas = vidas - 1;
2589              printf("Vidas restantes: %d", vidas);
2590              valdivi2 = funciondivi(2);
2591              randomum = rand() % 3 + 1;
2592              if (vidas == 0)
2593              {
2594                  menu_state = 17;
2595              }
2596
2597              if ((event.mouse.button & 1) && (event.mouse.x >= 291) ↵
2598                  && (event.mouse.x <= (509)) && (event.mouse.y >= 300) ↵
2599                  && (event.mouse.y <= 400))
2600              {
2601                  al_play_sample_instance(ins_bo);
2602                  vidas = vidas - 1;
2603                  printf("Vidas restantes: %d", vidas);
2604                  valdivi2 = funciondivi(2);
```

```
2599                     randomum = rand() % 3 + 1;
2600                     if (vidas == 0)
2601                     {
2602                         menu_state = 17;
2603                     }
2604                 }
2605
2606             if ((event.mouse.button & 1) && (event.mouse.x >= 291) && (event.mouse.x <= (509)) && (event.mouse.y >= 425) && (event.mouse.y <= 525))
2607             {
2608                 al_play_sample_instance(ins_bo);
2609                 contador = contador + 1;
2610                 printf("%d\n", contador);
2611                 valdivi2 = funcionaldivi(2);
2612                 randomum = rand() % 3 + 1;
2613                 if (contador == 15)
2614                 {
2615                     divi2 = true;
2616                     menu_state = 18;
2617                 }
2618             }
2619             if ((event.mouse.button & 1) && (event.mouse.x >= 0) && (event.mouse.x <= (72)) && (event.mouse.y >= 0) && (event.mouse.y <= 36))
2620             {
2621                 al_play_sample_instance(ins_bo);
2622                 menu_state = menu_state - 2;
2623             }
2624         }
2625     }
2626 }
2627 else if (menu_state == 16)//Division lvl 3
2628 {
2629     al_draw_bitmap(fondo, 0, 0, 0);
2630     //Rectangulos para el texto
2631     al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight,
2632                           217, 32, imageWidth * 1.6, imageHeight * 1, 0);
2633     //Rectangulos respuestas
2634     al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight,
2635                           300, 175, imageWidth* scale, imageHeight* scale, 0);
2636     al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight,
2637                           300, 300, imageWidth* scale, imageHeight* scale, 0);
2638     al_draw_scaled_bitmap(vacio, 0, 0, imageWidth, imageHeight,
2639                           300, 425, imageWidth* scale, imageHeight* scale, 0);
2640     al_draw_scaled_bitmap(img_volver, 0, 0, imageWidth,
2641                           imageHeight, 0, 0, imageWidth * 0.3, imageHeight * 0.3, 0);
2642     //Texto
2643     al_draw_text(font, al_map_rgb(255, 255, 255), 250, 55, 0,
```

```
2639         "Cual es el resultado ENTERO de esta division?");  
2639     al_draw_textf(font, al_map_rgb(255, 255, 255), 385, 100, 0, ↵  
2640         "%d / %d", valdivi3.val1, valdivi3.val2);  
2640     al_draw_textf(font20Bold, al_map_rgb(255, 0, 255), 650, 50, ↵  
2641         0, "Aciertos: %d", contador);  
2641     al_draw_textf(font20Bold, al_map_rgb(255, 0, 255), 600, 25, ↵  
2642         0, "Vidas restantes: %d", vidas);  
2642 //al_draw_scaled_bitmap(img_suma, 0, 0, imageWidth, ↵  
2643     imageHeight, 100, 175, imageWidth * scale, imageHeight * ↵  
2644     scale, 0);  
2643     al_flip_display();  
2644     al_flush_event_queue(event_queue);  
2645  
2646  
2647     if (randomum == 1)  
2648     {  
2649         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, ↵  
2649             205, 0, "%.\f", valdivi3.divi);  
2650         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, ↵  
2650             330, 0, "%.\f", valdivi3.divi + 1);  
2651         al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, ↵  
2651             455, 0, "%.\f", valdivi3.divi - 1);  
2652         al_flip_display();  
2653         al_flush_event_queue(event_queue);  
2654  
2655         if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)  
2656         {  
2657             if ((event.mouse.button & 1) && (event.mouse.x >= 291) && (event.mouse.x <= (509)) && (event.mouse.y >= 175) && (event.mouse.y <= 275))  
2658             {  
2659                 al_play_sample_instance(ins_bo);  
2660                 contador = contador + 1;  
2661                 printf("%d\n", contador);  
2662                 valdivi3 = funciondivi(3);  
2663                 randomum = rand() % 3 + 1;  
2664                 if (contador == 15)  
2665                 {  
2666                     divi3 = true;  
2667                     menu_state = 18;  
2668                 }  
2669             }  
2670  
2671             if ((event.mouse.button & 1) && (event.mouse.x >= 291) && (event.mouse.x <= (509)) && (event.mouse.y >= 300) && (event.mouse.y <= 400))  
2672             {  
2673                 al_play_sample_instance(ins_bo);  
2674                 vidas = vidas - 1;
```

```
2675             printf("Vidas restantes: %d", vidas);
2676             valdivi3 = funciondivi(3);
2677             randomum = rand() % 3 + 1;
2678             if (vidas == 0)
2679             {
2680                 menu_state = 17;
2681             }
2682         }
2683
2684         if ((event.mouse.button & 1) && (event.mouse.x >=
291) && (event.mouse.x <= (509)) && (event.mouse.y >=
425) && (event.mouse.y <= 525))
2685         {
2686             al_play_sample_instance(ins_bo);
2687             vidas = vidas - 1;
2688             printf("Vidas restantes: %d\n", vidas);
2689             valdivi3 = funciondivi(3);
2690             randomum = rand() % 3 + 1;
2691             if (vidas == 0)
2692             {
2693                 menu_state = 17;
2694             }
2695         }
2696         if ((event.mouse.button & 1) && (event.mouse.x >= 0) &
& (event.mouse.x <= (72)) && (event.mouse.y >= 0) &&
(event.mouse.y <= 36))
2697         {
2698             al_play_sample_instance(ins_bo);
2699             menu_state = menu_state - 3;
2700         }
2701     }
2702 }
2703 else if (randomum == 2)
2704 {
2705     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, >
205, 0, "%.\f", valdivi3.divi - 1);
2706     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, >
330, 0, "%.\f", valdivi3.divi);
2707     al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, >
455, 0, "%.\f", valdivi3.divi + 1);
2708     al_flip_display();
2709     al_flush_event_queue(event_queue);
2710
2711     if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
2712     {
2713         if ((event.mouse.button & 1) && (event.mouse.x >=
291) && (event.mouse.x <= (509)) && (event.mouse.y >=
175) && (event.mouse.y <= 275))
2714         {
```

```
2715             al_play_sample_instance(ins_bo);
2716             vidas = vidas - 1;
2717             printf("Vidas restantes: %d", vidas);
2718             valdivi3 = funciondivi(3);
2719             randomum = rand() % 3 + 1;
2720             if (vidas == 0)
2721             {
2722                 menu_state = 17;
2723             }
2724         }
2725
2726         if ((event.mouse.button & 1) && (event.mouse.x >=      ↵
291) && (event.mouse.x <= (509)) && (event.mouse.y >=      ↵
300) && (event.mouse.y <= 400))
2727         {
2728             al_play_sample_instance(ins_bo);
2729             contador = contador + 1;
2730             printf("%d\n", contador);
2731             valdivi3 = funciondivi(3);
2732             randomum = rand() % 3 + 1;
2733             if (contador == 15)
2734             {
2735                 divi3 = true;
2736                 menu_state = 18;
2737             }
2738         }
2739
2740         if ((event.mouse.button & 1) && (event.mouse.x >=      ↵
291) && (event.mouse.x <= (509)) && (event.mouse.y >=      ↵
425) && (event.mouse.y <= 525))
2741         {
2742             al_play_sample_instance(ins_bo);
2743             vidas = vidas - 1;
2744             printf("Vidas restantes: %d", vidas);
2745             valdivi3 = funciondivi(3);
2746             randomum = rand() % 3 + 1;
2747             if (vidas == 0)
2748             {
2749                 menu_state = 17;
2750             }
2751         }
2752         if ((event.mouse.button & 1) && (event.mouse.x >= 0)      ↵
&& (event.mouse.x <= (72)) && (event.mouse.y >= 0) &&      ↵
(event.mouse.y <= 36))
2753         {
2754             al_play_sample_instance(ins_bo);
2755             menu_state = menu_state - 3;
2756         }
2757     }
```

```
2758         }
2759         else if (randomum == 3)
2760         {
2761             al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, ↵
2762                         205, 0, "%.f", valdivi3.divi + 1);
2763             al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, ↵
2764                         330, 0, "%.f", valdivi3.divi - 1);
2765             al_draw_textf(font40Bold, al_map_rgb(255, 255, 255), 385, ↵
2766                         455, 0, "%.f", valdivi3.divi);
2767             al_flip_display();
2768             al_flush_event_queue(event_queue);
2769
2770             if (event.type == ALLEGRO_EVENT_MOUSE_BUTTON_DOWN)
2771             {
2772                 if ((event.mouse.button & 1) && (event.mouse.x >= 291) && (event.mouse.x <= (509)) && (event.mouse.y >= 175) && (event.mouse.y <= 275))
2773                 {
2774                     al_play_sample_instance(ins_bo);
2775                     vidas = vidas - 1;
2776                     printf("Vidas restantes: %d", vidas);
2777                     valdivi3 = funciondivi(3);
2778                     randomum = rand() % 3 + 1;
2779                     if (vidas == 0)
2780                     {
2781                         menu_state = 17;
2782                     }
2783                 }
2784                 if ((event.mouse.button & 1) && (event.mouse.x >= 291) && (event.mouse.x <= (509)) && (event.mouse.y >= 300) && (event.mouse.y <= 400))
2785                 {
2786                     al_play_sample_instance(ins_bo);
2787                     vidas = vidas - 1;
2788                     printf("Vidas restantes: %d", vidas);
2789                     valdivi3 = funciondivi(3);
2790                     randomum = rand() % 3 + 1;
2791                     if (vidas == 0)
2792                     {
2793                         menu_state = 17;
2794                     }
2795                 }
2796                 if ((event.mouse.button & 1) && (event.mouse.x >= 291) && (event.mouse.x <= (509)) && (event.mouse.y >= 425) && (event.mouse.y <= 525))
2797                 {
2798                     al_play_sample_instance(ins_bo);
```

```
2798             contador = contador + 1;
2799             printf("%d\n", contador);
2800             valdivi3 = funciondivi(3);
2801             randomum = rand() % 3 + 1;
2802             if (contador == 15)
2803             {
2804                 divi3 = true;
2805                 menu_state = 18;
2806             }
2807         }
2808         if ((event.mouse.button & 1) && (event.mouse.x >= 0) ↵
2809             && (event.mouse.x <= (72)) && (event.mouse.y >= 0) && ↵
2810             (event.mouse.y <= 36))
2811         {
2812             al_play_sample_instance(ins_bo);
2813             menu_state = menu_state - 3;
2814         }
2815     }
2816     else if (menu_state == 17)//GameOver
2817     {
2818         int fondolwidth, fondolheight;
2819         fondolwidth = al_get_bitmap_width(fondo_lose);
2820         fondolheight = al_get_bitmap_height(fondo_lose);
2821         al_draw_scaled_bitmap(fondo_lose, 0, 0, fondolwidth, ↵
2822             fondolheight, 0, 0, 800, 563, 0);
2823         al_draw_text(font20, al_map_rgb(255, 255, 255), 300, 400, 0, ↵
2824             "Presiona ENTER para continuar..");
2825         al_draw_text(font20, al_map_rgb(255, 255, 255), 300, 420, 0, ↵
2826             "Presiona ESC para salir..");
2827         al_flip_display();
2828         al_stop_sample_instance(ins_mu);
2829         al_play_sample_instance(ins_pe2);
2830         al_flush_event_queue(event_queue);
2831     }
2832     else if (menu_state == 18)//Ganaste!
2833     {
2834         int fondonowidth, fondonowheight;
2835         fondonowidth = al_get_bitmap_width(fondo_win);
2836         fondonowheight = al_get_bitmap_height(fondo_win);
2837         al_draw_scaled_bitmap(fondo_win, 0, 0, fondonowidth, ↵
2838             fondonowheight, 0, 0, 800, 563, 0);
2839         al_draw_text(font40Bold, al_map_rgb(255, 255, 255), 125, 200, ↵
2840             0, "FELICIDADES COMPLETASTE EL NIVEL!");
2841         al_draw_text(font20, al_map_rgb(255, 255, 255), 125, 300, 0, ↵
2842             "Presiona ENTER para continuar..");
2843         al_draw_text(font20, al_map_rgb(255, 255, 255), 125, 320, 0, ↵
```

```
                                "Presiona ESC para salir..");
2839         al_flip_display();
2840         al_stop_sample_instance(ins_mu);
2841
2842         if (ganaste == 0)
2843     {
2844             ganaste = 1;
2845             printf("%d", ganaste);
2846             al_play_sample_instance(ins_ga);
2847             al_rest(1.0);
2848         }
2849
2850         al_play_sample_instance(ins_ga2);
2851         al_flush_event_queue(event_queue);
2852     }
2853
2854 }
2855 //Destruccion de imagenes
2856 al_destroy_bitmap(img_suma1);
2857 al_destroy_bitmap(img_suma2);
2858 al_destroy_bitmap(img_suma3);
2859 al_destroy_bitmap(img_suma);
2860 al_destroy_bitmap(fondo);
2861 al_destroy_bitmap(fondo_win);
2862 al_destroy_bitmap(fondo_lose);
2863 al_destroy_bitmap(img_exit);
2864 al_destroy_bitmap(img_multi);
2865 al_destroy_bitmap(img_volver);
2866 //Destruccion de audios
2867 al_destroy_sample(musica);
2868 al_destroy_sample(correcto);
2869 al_destroy_sample(incorrecto);
2870 al_destroy_sample(boton);
2871 al_destroy_sample(perder);
2872 al_destroy_sample(perder2);
2873 al_destroy_sample_instance(ins_mu);
2874 al_destroy_sample_instance(ins_co);
2875 al_destroy_sample_instance(ins_in);
2876 al_destroy_sample_instance(ins_bo);
2877 al_destroy_sample_instance(ins_pe);
2878 al_destroy_sample_instance(ins_pe2);
2879 //Destruccion de pantalla
2880 al_destroy_display(display);
2881 //Destruccion de fonts
2882 al_destroy_font(font20);
2883 al_destroy_font(font20Bold);
2884
2885     return 0;
2886 }
```

```
2887
2888 Tsuma funcionsuma(int nivel)
2889 {
2890     Tsuma reg;
2891
2892     if (nivel == 1)
2893     {
2894         reg.val1 = rand() % 10 + 1;
2895         reg.val2 = rand() % 10 + 1;
2896         reg.suma = reg.val1 + reg.val2;
2897
2898         return reg;
2899     }
2900     else if (nivel == 2)
2901     {
2902         reg.val1 = rand() % 10 + 1;
2903         reg.val2 = rand() % 99 + 1;
2904         reg.suma = reg.val1 + reg.val2;
2905
2906         return reg;
2907     }
2908     else if (nivel == 3)
2909     {
2910         reg.val1 = rand() % 99 + 1;
2911         reg.val2 = rand() % 99 + 1;
2912         reg.suma = reg.val1 + reg.val2;
2913
2914         return reg;
2915     }
2916 }
2917
2918 Tsuma funcionresta(int nivel)
2919 {
2920     Tsuma reg;
2921     int temp;
2922
2923     if (nivel == 1)
2924     {
2925         reg.val1 = rand() % 10 + 1;
2926         reg.val2 = rand() % 10 + 1;
2927         if (reg.val1 >= reg.val2)
2928         {
2929             reg.suma = reg.val1 - reg.val2;
2930             return reg;
2931         }
2932         else
2933         {
2934             temp = reg.val1;
2935             reg.val1 = reg.val2;
```

```
2936         reg.val2 = temp;
2937         reg.suma = reg.val1 - reg.val2;
2938         return reg;
2939     }
2940
2941 }
2942 else if (nivel == 2)
2943 {
2944     reg.val2 = rand() % 10 + 1;
2945     reg.val1 = rand() % 99 + 1;
2946     if (reg.val1 >= reg.val2)
2947     {
2948         reg.suma = reg.val1 - reg.val2;
2949         return reg;
2950     }
2951 else
2952 {
2953     temp = reg.val1;
2954     reg.val1 = reg.val2;
2955     reg.val2 = temp;
2956     reg.suma = reg.val1 - reg.val2;
2957     return reg;
2958 }
2959
2960 }
2961 else if (nivel == 3)
2962 {
2963     reg.val1 = rand() % 99 + 1;
2964     reg.val2 = rand() % 99 + 1;
2965     if (reg.val1 >= reg.val2)
2966     {
2967         reg.suma = reg.val1 - reg.val2;
2968         return reg;
2969     }
2970 else
2971 {
2972     temp = reg.val1;
2973     reg.val1 = reg.val2;
2974     reg.val2 = temp;
2975     reg.suma = reg.val1 - reg.val2;
2976     return reg;
2977 }
2978 }
2979 }
2980
2981 Tsuma funcionmulti(int nivel)
2982 {
2983     Tsuma reg;
2984 }
```

```
2985     if (nivel == 1)
2986     {
2987         reg.val1 = rand() % 10 + 1;
2988         reg.val2 = rand() % 10 + 1;
2989         reg.suma = reg.val1 * reg.val2;
2990
2991         return reg;
2992     }
2993     else if (nivel == 2)
2994     {
2995         reg.val1 = rand() % 10 + 1;
2996         reg.val2 = rand() % 20 + 1;
2997         reg.suma = reg.val1 * reg.val2;
2998
2999         return reg;
3000     }
3001     else if (nivel == 3)
3002     {
3003         reg.val1 = rand() % 20 + 1;
3004         reg.val2 = rand() % 20 + 1;
3005         reg.suma = reg.val1 + reg.val2;
3006
3007         return reg;
3008     }
3009 }
310
311 Tdivi funciondivi(int nivel)
312 {
313     Tdivi reg;
314     int temp;
315
316     if (nivel == 1)
317     {
318         reg.val1 = rand() % 10 + 1;
319         reg.val2 = rand() % 10 + 1;
320         if (reg.val1 >= reg.val2)
321         {
322             reg.divi = reg.val1 / reg.val2;
323             return reg;
324         }
325         else
326         {
327             temp = reg.val1;
328             reg.val1 = reg.val2;
329             reg.val2 = temp;
330             reg.divi = reg.val1 / reg.val2;
331             return reg;
332         }
333     }
```

```
3034     }
3035     else if (nivel == 2)
3036     {
3037         reg.val2 = rand() % 10 + 1;
3038         reg.val1 = rand() % 99 + 1;
3039         if (reg.val1 >= reg.val2)
3040         {
3041             reg.divi = reg.val1 / reg.val2;
3042             return reg;
3043         }
3044     else
3045     {
3046         temp = reg.val1;
3047         reg.val1 = reg.val2;
3048         reg.val2 = temp;
3049         reg.divi = reg.val1 / reg.val2;
3050         return reg;
3051     }
3052 }
3053 }
3054 else if (nivel == 3)
3055 {
3056     reg.val1 = rand() % 99 + 1;
3057     reg.val2 = rand() % 99 + 1;
3058     if (reg.val1 >= reg.val2)
3059     {
3060         reg.divi = reg.val1 / reg.val2;
3061         return reg;
3062     }
3063     else
3064     {
3065         temp = reg.val1;
3066         reg.val1 = reg.val2;
3067         reg.val2 = temp;
3068         reg.divi = reg.val1 / reg.val2;
3069         return reg;
3070     }
3071 }
3072 }
3073 }
```

## **Conclusión**

El curso de programación estructurada ha sido una experiencia enriquecedora y gratificante. A lo largo del curso, hemos adquirido un conjunto sólido de conocimientos y habilidades fundamentales para programar en el lenguaje C.

Durante el curso, se abordaron temas clave, como la sintaxis del lenguaje, las estructuras de control, los arreglos, las funciones y la gestión de memoria. Aprendimos a diseñar algoritmos eficientes y a implementar soluciones prácticas a través de proyectos prácticos y ejercicios de programación.

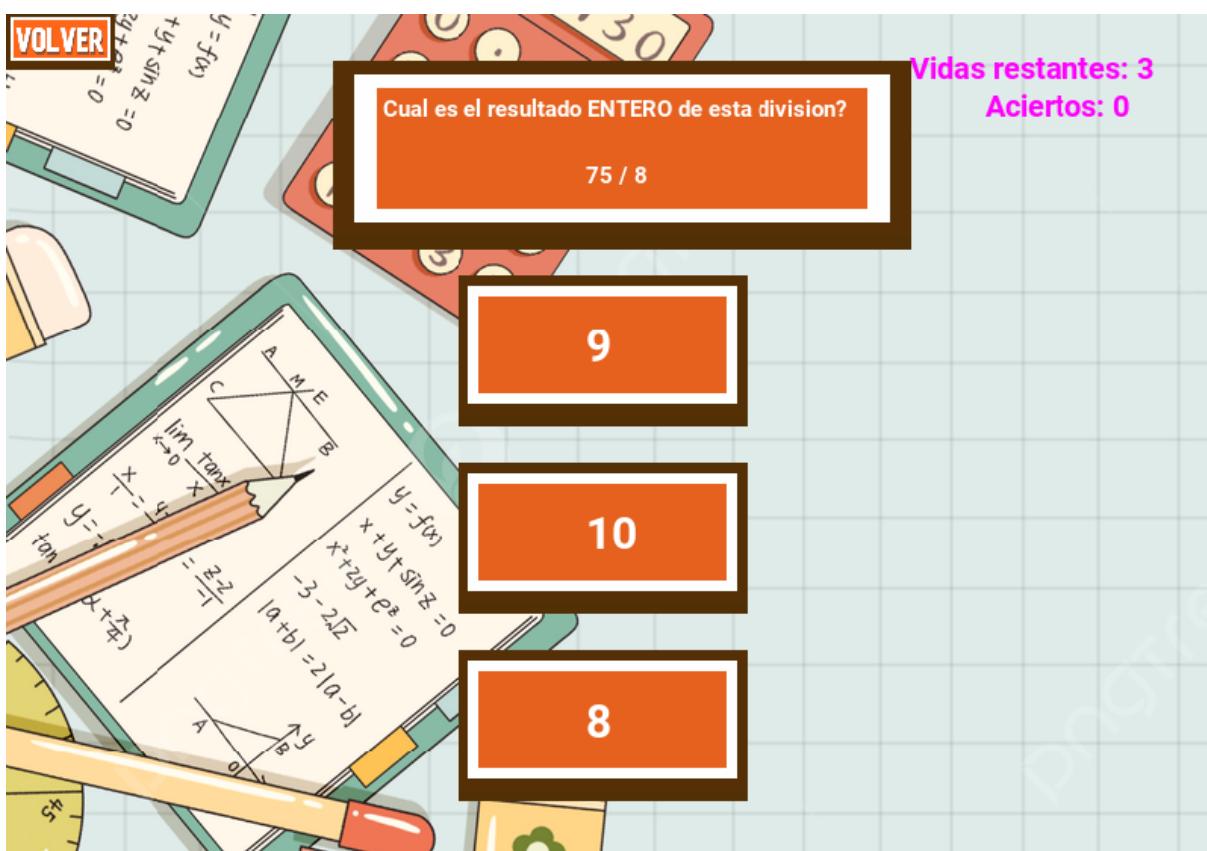
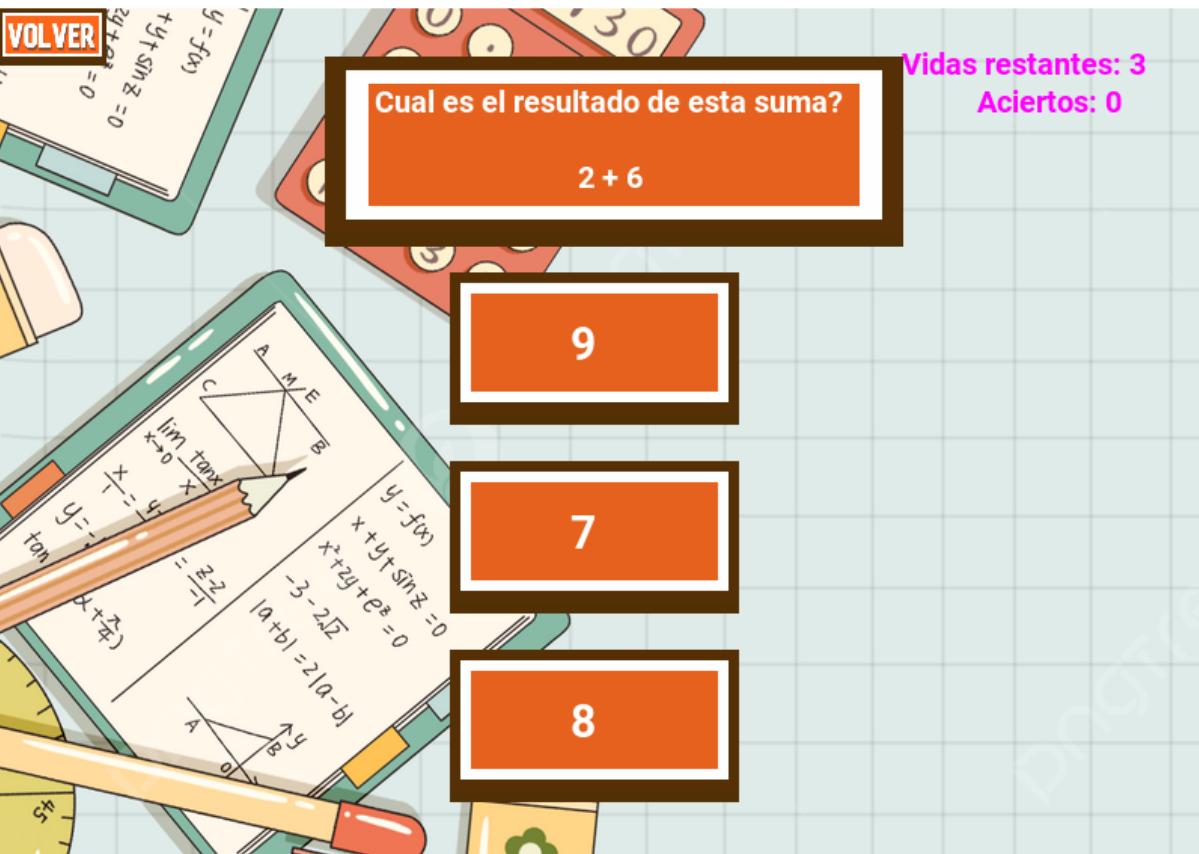
Además, el curso nos brindó una comprensión profunda de los conceptos básicos de la programación, lo que sienta una base sólida para continuar aprendiendo otros lenguajes de programación. El conocimiento adquirido en C nos ha permitido comprender mejor los principios fundamentales de la programación y ampliar nuestra capacidad de resolver problemas y desarrollar software de calidad.

Se fomentó la creatividad y la resolución de problemas, ya que tuvimos la oportunidad de aplicar los conceptos aprendidos en proyectos prácticos. Esto fortaleció nuestra confianza y nos preparó para enfrentar desafíos más complejos en el ámbito de la programación.

En resumen, la clase de programación estructurada nos dió una base sólida en el lenguaje y los conceptos de programación. Logramos desarrollar habilidades prácticas y una mentalidad analítica para resolver problemas mediante la programación. Este curso es un punto de partida valioso para seguir nuestro camino como ingenieros en computación en la UABC.

## **CAPTURAS**







Presiona ENTER para continuar..  
Presiona ESC para salir..

# GAME OVER

Presiona ENTER para continuar..  
Presiona ESC para salir..

