

# RLOTTO Code Manual

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# 1 Makefile

```
1  # compile instructions from: https://github.com/prozumr/RLOTTO2/issues/1
2  # gcc rlotto.c t_select.c t_add.c t_evaluate.c t_delete.c settings.c t_common.c -o rlotto.exe
3
4  CC      = gcc
5  CFLAGS  = -Wall
6  BIN     = rlotto.exe
7  RLOTTOTEX = rlotto-manual.tex
8  LATEX    = lualatex
9  LATEXOPT = --interaction=batchmode -shell-escape
10
11 HEADER   = rlotto.h version.h
12 CFILES    = rlotto.c settings.c t_add.c t_common.c t_delete.c \
13             t_evaluate.c t_select.c
14 PYTHON    = create_rlotto_tex_file.py
15 OBJ       = rlotto.o t_select.o t_add.o t_evaluate.o t_delete.o settings.o \
16             t_common.o
17
18 all: $(OBJ)
19     $(CC) -DMYSTRING='"hello"' $(CFLAGS) -o $(BIN) $(OBJ)
20
21 .PHONY: manual
22 manual:
23     cd manual; \
24     ./create_rlotto_tex_file.py \
25         --header "$(HEADER)" \
26         --csource "$(CFILES)" \
27         --python "$(PYTHON)" \
28         > $(RLOTTOTEX); \
29     $(LATEX) $(LATEXOPT) $(RLOTTOTEX); \
30     $(LATEX) $(LATEXOPT) $(RLOTTOTEX)
31
32
33 .PHONY: clean
34 clean:
35     rm -rf $(BIN) $(OBJ)
36     cd manual && rm -rf *.aux *.log *.toc *.out manual/_minted*
```

## 2 Header files

### rlotto.h

```
1  /*rlotto.h | RLotto | gcc | v0.8.354.1715
2  * Console program for storing and evaluating lottery ticket results.
3  * -----
4  *
5  * Objective:    Providing global variables and functions for RLotto
6  *
7  * Author:      Reinhard Rozumek
8  * Email:       reinhard@rozumek.de
9  * Created:     10/08/17
10 * Last mod:    02/05/18
11 *
12 * -----
13 * This file is part of RLotto.
14 *
15 * c is free software; you can redistribute it and/or
16 * modify it under the terms of the GNU General Public License
17 * as published by the Free Software Foundation; either version 3
18 * of the License, or (at your option) any later version.
19 *
20 * RLotto is distributed in the hope that it will be useful,
21 * but WITHOUT ANY WARRANTY; without even the implied warranty of
22 * MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
23 * GNU General Public License for more details.
24 *
25 * You should have received a copy of the GNU General Public License
26 * along with RLOTTO2. If not, see <http://www.gnu.org/licenses/>.
27 */
28
29
30
31 #ifndef RLOTTO_H
32 #define RLOTTO_H
33 #define N 80
34 #define NOLR 12                                // N_umber O_f L_ottery R_ows -1 (First Row with 1
35
36 /* GLOBAL VARIABLES */
37 bool go_Exit;
38 struct date { short month, day, year; };          // not used !? => check
39
40 extern int ALN[6];                                // Actual Lottery Numbers
41 extern int ASN;                                    // Actual Super Number
42 extern char cG77[8];                              // Actual Game 77 Number
43 extern char cSU6[7];                              // Actual Super 6 Number
44 extern char TicketFolder[13];                     // Folder to store results
45 extern char ResultFolder[13];                     // Folder to store results
46 extern FILE *pFile;                               // Pointer to result file
47
48 /* GLOBAL DEFINITIONS */
49 #define MAX_T_PLAYER_SZ 64                        // Max characters for player name
50 #define MAX_LINE_LENGTH 80                        // Max characters for length of a ticket row
51 #define T_EXT ".tck"                             // File extension for lottery tickets
52
53
54
55
56 /* FUNCTION DECLARATIONS */
57
58 int getche(void);
59 int terminateProgram(void);
60 int welcome(void);
61 int selectTicket(void);
62 int addTicket(void);
```

```

63     int evaluateTicket(void);
64     int deleteTicket(void);
65     int configureSettings(void);
66     int terminateProgram(void);
67     int t_initialize(void);                                // Initialize ticket data structure
68
69
70     /* STRUCTURE TICKET */
71
72     struct ticket {
73
74         char T_No[8];                                     // Ticket Number - 7 digits + NULL terminator
75         char T_Player[MAX_T_PLAYER_SZ];                  // Player Name(s). Site limited by MAX_T_PLAYER_SZ
76         char T_Start[11];                                // Ticket Start Date
77         char T_Runtime[2];                               // Runtime for ticket
78         char T_D_Day[2];                                 // Drawing Day: s_saturday, w_wednesday, or b_oth
79         char T_G77[2];                                   // Game 77 yes or no
80         char T_SU6[2];                                   // Super 6 yes or no
81         char T_GSP[2];                                   // Glueckspirale yes or no
82         int T_Max_Row;                                   // Max Number of active rows
83         int T_Row[12] [6];                               // Lottery numbers per row
84
85     } current;
86
87     /* MAPPING ATTRIBUTES*/
88
89     char display_runtime[10];                             // range: 1,2,3,4,5,month,permananet
90     char display_weekday[10];                             // range: Wed,Sat,Wed + Sat
91     char display_G77[4];                                   // range: yes,no
92     char display_SU6[4];                                   // range: yes,no
93     char display_GSP[4];                                   // range: yes,no
94
95
96
97
98     #ifdef __linux__
99         extern int lgetche(void);
100     #   define mygetc lgetche
101     #else
102     #   define mygetc getche
103     #endif
104
105     #endif // TICKET_H_INCLUDED

```

## version.h

```
1  /*version.h | RLotto | gcc | v0.8.354.1715
2  * Console program for storing and evaluating lottery ticket results.
3  * -----
4  *
5  * Objective:    maintain version information for source code
6  *
7  * Author:      Reinhard Rozumek
8  * Email:       reinhard@rozumek.de
9  * Created:     10/08/17
10 * Last mod:    02/11/18
11 *
12 * -----
13 * This file is part of RLotto.                                */
14
15
16 #ifndef VERSION_H
17 #define VERSION_H
18
19     // TODO (camelot#3#01/03/18): Improve handling of version number
20
21     //Program Name
22     static const char THISPROG[] = "RLOTTO";
23
24     //Software Status
25     static const char STATUS[] = "v0.8 beta";
26     static const char STATUS_SHORT[] = "v0.8b";
27
28     //Standard Version Type
29     static const long MAJOR = 0;
30     static const long MINOR = 8;
31     static const long BUILD = 354;
32     static const long REVISION = 1715;
33
34     //Miscellaneous Version Types
35     static const long BUILDS_COUNT = 354;
36     #define RC_FILEVERSION 0,8,353,1715
37     #define RC_FILEVERSION_STRING "0, 8, 354, 1715\0"
38     static const char FULLVERSION_STRING[] = "0.8.354.1715";
39
40     //These values are to keep track of your versioning state, don't modify them.
41     static const long BUILD_HISTORY = 29;
42
43
44 #endif //VERSION_h
45
46
47 /*
48
49 ABSTRACT
50
51 Originally generated by a Code::Blocks plugin. RLOTTO continues to use version.h
52 for central maintenance of versioning. However and since RLOTTO is developed with
53 no real IDE but just an editor (VIM/GVIM/Notepad++), FAR and the GNU Compiler this
54 file is maintained manually.
55
56
57 VERSION VALUES
58
59 Major - Increments by 1 when the minor version reaches its maximum
60 Minor - Increments by 1 when the build number pass the barrier of build times, the value is reset to 0 when it reach its maximum
61 Build number (also equivalent to Release) - Increments by 1 every time that the revision number is incremented.
62 Revision - Increments randomly when the project has been modified and then compiled.
63
64 STATUS
65
```

66  
67  
68  
69  
70  
71  
72  
73  
74  
75  
76  
77  
78  
79

*Some fields to keep track of your software status with a list of predefined values for convenience.*

*Software Status - The typical example should be v1.0 Alpha*  
*Abbreviation - Same as software status but like this: v1.0a*

*SCHEME*

*Minor maximum - The maximum number that the Minor value can reach, after this value is reached the Major is incremented by 1*  
*Build Number maximum - When the value is reached, the next time the project is compiled is set to 0. Put a 0 for unlimited.*  
*Revision maximum - Same as Build Number maximum. Put a 0 for unlimited*  
*Revision random maximum - The revision increments by random numbers that you decide, if you put here 1, the revision obvious*  
*Build times before incrementing Minor - After successful changes to code and compilation the build history will increment, an*  
*\*/*

## 3 Sourcecode

### rlotto.c

```
1  /*rlotto.c | RLotto | gcc | v0.8.354.1715
2  * Console program for storing and evaluating lottery ticket results.
3  * -----
4  *
5  * Objective:    Main Menu and core program loop
6  *
7  * Author:      Reinhard Rozumek
8  * Email:       reinhard@rozumek.de
9  * Created:     09/23/17
10 * Last mod:    02/11/17
11 *
12 * -----
13 * This file is part of RLotto.
14 *
15 * RLotto is free software; you can redistribute it and/or
16 * modify it under the terms of the GNU General Public License
17 * as published by the Free Software Foundation; either version 3
18 * of the License, or (at your option) any later version.
19 *
20 * RLotto is distributed in the hope that it will be useful,
21 * but WITHOUT ANY WARRANTY; without even the implied warranty of
22 * MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
23 * GNU General Public License for more details.
24 *
25 * You should have received a copy of the GNU General Public License
26 * along with RLotto. If not, see <http://www.gnu.org/licenses/>.
27 */
28
29
30
31 /* Header Section *****/
32
33 #include <stdio.h>
34 #include <stdbool.h>
35 #include <stdlib.h>
36 #include <ctype.h>
37 #include <string.h>
38 #include <dirent.h>
39 #include "rlotto.h"
40 #include "version.h"
41
42
43
44
45 /* GLOBAL VARIABLES *****/
46
47 int ALN[6];           // Actual Lottery Numbers
48 int ASN = -1;         // Actual Super Number
49 char cG77[8];         // Actual Game 77 Number
50 char cSU6[7];         // Actual Super 6 Number
51 char TicketFolder[13] = ".\\tickets\\"; // Folder to store results
52 char ResultFolder[13] = ".\\results\\";  // Folder to store results
53 FILE *pFile = NULL;   // Pointer to result file
54
55 /* Global Functions *****/
56
57 #ifdef __linux__
58 int lgetche(void)
59 {
60     system("stty raw");//setting the terminal in raw mode
61     char ch=getchar();
62     system("stty cooked");
```

```

63     return(ch);
64 }
65 #endif
66
67 /*****
68  * MAIN
69  *****/
70
71 /* Function main just displays the main user menu and generates the main
72    program loop. Program can only be terminated by the option from the main
73    menu. All submenus are coded in other functions. */
74
75 int main() {
76
77     int iSelect;                                // Selection from Main Menu
78
79     welcome();                                  // Welcome Message
80     t_initialize();                             // Initialize ticket data structure
81
82     // TODO (camelot#3#01/03/18): Implement Console attribute (Title, Color etc.) ...
83
84     /* Main Loop starts here */
85
86     do {
87
88         printf("\nMain Menu Options\n");
89         printf("-----\n");
90         printf("\t1 - Add Lottery Ticket\n");
91         printf("\t2 - Delete Lottery Ticket\n");
92         printf("\t3 - Evaluate Lottery Ticket\n");
93         printf("\t4 - RLotto settings\n");
94         printf("\t5 - Terminate Program\n");
95
96         do {
97
98             printf("\nPlease select (1-5): ");
99             iSelect =(mygetc());
100             fflush(stdin);
101
102             } while(iSelect < 49 || iSelect > 53);
103
104             iSelect = iSelect - 48;
105
106             switch(iSelect) {
107
108                 case 1: addTicket(); break;
109                 case 2: deleteTicket(); break;
110                 case 3: selectTicket(); break;
111                 case 4: configureSettings(); break;
112                 case 5: terminateProgram();
113
114             }
115
116             } while(go_Exit == false);
117
118     }
119
120 /*****
121  * WELCOME
122  *****/
123
124 /* Welcome message and check for default RLotto file to open. */
125
126 int welcome(void) {
127
128     printf("\n%s v%d.%d.%d.%d\n",THISPROG,MAJOR,MINOR,BUILD,REVISION);

```





## settings.c

```
1  /*settings.c | RLotto | gcc | v0.0.2.0
2  * Console program for storing and evaluating lottery ticket results.
3  * -----
4  *
5  * Objective:    Configure settings and handling of ini file
6  *
7  * Author:      Reinhard Rozumek
8  * Email:      reinhard@rozumek.de
9  * Created:    10/08/17
10 * Last mod:   10/08/17
11 *
12 * -----
13 * This file is part of RLotto.                                */
14
15
16 // HEADER SECTION
17
18 #include <stdio.h>
19 #include <stdbool.h>
20 #include <stdlib.h>
21 #include <ctype.h>
22 #include <string.h>
23 #include <dirent.h>
24 #include "rlotto.h"
25
26 /* CONFIGURE SETTINGS -----*/
27 /* Configure settings in INI file.
28 */
29 int configureSettings(void) {
30     printf("\n\nConfigure Settings for RLotto.\n");
31
32
33     printf("\n\n--- UNDER CONSTRUCTION ---\n");
34
35     return 0;
36 }
```

## t\_add.c

```
1  /*t_add.c | RLotto | gcc | v0.8.354.1715
2  * Console program for storing and evaluating lottery ticket resultt.
3  * -----
4  *
5  * Objective:    Create and store new ticket as ASCII file to file system.
6  *
7  * Author:      Reinhard Rozumek
8  * Email:       reinhard@rozumek.de
9  * Created:     10/08/17
10 * Last mod:    11/18/17
11 *
12 * -----
13 * This file is part of RLotto.                                */
14
15
16 // HEADER SECTION
17
18 #include <stdio.h>
19 #include <stdbool.h>
20 #include <stdlib.h>
21 #include <string.h>
22 #include <dirent.h>
23 #include <ctype.h>
24 #include <time.h>
25 #include "rlotto.h"
26
27 //GLOBAL VARIABLES
28
29
30
31 // FUNCTION DECLARATION
32
33 int t_initialize(void);
34 void get_ticket_No(void);
35 void get_Player_Name(void);
36 void get_Start_Date(void);
37 void get_T_Runtime(void);
38 void get_T_D_Day(void);
39 void get_T_G77(void);
40 void get_T_SU6(void);
41 void get_T_GSP(void);
42 void get_T_Rows(void);
43 void display_Ticket(void);
44 void write_Ticket(void);
45 void map_t_attributes(int choice);
46 bool isCorrectTicketNo(char *n);
47 bool isCorrectDateFormat(int m, int d, int y);
48 bool isLeapYear(const int iYear);
49
50
51 /*****
52  * ADD TICKET - CALL INPUT SUBMENUS
53  *****/
54
55 int addTicket(void) {
56
57     // TODO (camelot#2#01/20/18): Implement condition to add only enabled data (e.g. Super6, Spiel 77 etc.)
58
59     bool is_ok = false;
60     bool first_input = true;
61     char sConfirm[2], sWrite[2];
62
63     // CONFIRM TO CREATE NEW TICKET
64     do {
65
```

```

66     if(first_input == true)
67         printf("\n\nAdd new lottery ticket? (y/n): ");
68     else
69         printf("Invalid input! Please correct: ");
70     scanf("%s", sConfirm);
71     fflush(stdin);
72
73     if(*sConfirm=='y' || *sConfirm=='n') {
74         is_ok = true;
75     }
76
77     first_input = false;
78
79 } while(is_ok == false);
80
81 // INPUT SUBMENUS - EACH INPUT QUERY ENCAPSULATED IN ITS OWN FUNCTION
82 if(*sConfirm=='y') {
83
84     t_initialize();
85     get_ticket_No();
86     get_Player_Name();
87     get_Start_Date();
88     get_T_Runtime();
89     get_T_D_Day();
90     get_T_G77();
91     get_T_SU6();
92     get_T_GSP();
93     get_T_Rows();
94     display_Ticket();
95
96     // CONFIRM TO WRITE TICKET
97     is_ok = false;
98     first_input = true;
99
100     do {
101
102         if(first_input == true)
103             printf("\nWrite ticket to file sytem? (y/n): ");
104         else
105             printf("Invalid input! Please correct: ");
106         scanf("%s", sWrite);
107         fflush(stdin);
108
109         if(*sWrite=='y' || *sWrite=='n') {
110             is_ok = true;
111         }
112
113         first_input = false;
114
115     } while(is_ok == false);
116
117     // WRITE TICKET TO FILE SYSTEM
118     if(*sWrite=='y') {
119
120         write_Ticket();
121
122     } else {
123
124         printf("\nCreation of new ticket canceled.\n");
125     }
126
127 } else {
128
129     printf("\nCreation of new ticket canceled.\n");
130 }
131

```

```

132     return 0;
133
134 }
135
136 /*****
137  * GET TICKET NUMBER
138  *****/
139
140 /* Gets Ticket Number by user input from stdin. */
141
142
143 void get_ticket_No(void) {
144
145     bool is_ok = false;           // correctness of input format
146     bool first_input = true;      // indicates first attempt for input
147     char ticket_No[8];           // Ticket No to return to calling function
148
149     do
150     {
151         if(first_input == true)
152             printf("Enter 7-digit Ticket Number: ");
153         else
154             printf("Invalid input! Please correct: ");
155         scanf("%8s", ticket_No);    //Input limited to 7 characters
156         fflush(stdin);
157         is_ok = (isCorrectTicketNo(ticket_No));
158         first_input = false;
159
160     } while(is_ok == false);
161
162     /* Remove trailing newline, if there and add 0 terminator. */
163     if ((strlen(ticket_No)>0) && (ticket_No[strlen (ticket_No) - 1] == '\n'))
164         ticket_No[strlen (ticket_No) - 1] = '\0';
165
166     strcpy(current.T_No , ticket_No);    // Assign ticket number to structure
167
168 }
169
170 /*****
171  * GET PLAYER NAME(S)
172  *****/
173
174 /* Gets Player Name by user input from stdin. */
175
176 void get_Player_Name(void) {
177
178     char cPlayers[MAX_T_PLAYER_SZ];
179
180     printf("Enter Player Name: ");
181     fgets (cPlayers, MAX_T_PLAYER_SZ, stdin);
182
183     /* Remove trailing newline, if there and add 0 terminator. */
184     if ((strlen(cPlayers)>0) && (cPlayers[strlen (cPlayers) - 1] == '\n'))
185         cPlayers[strlen (cPlayers) - 1] = '\0';
186
187     strcpy(current.T_Player, cPlayers);    // Assign ticket number to structure
188
189 }
190
191 /*****
192  * GET TICKET START DATE
193  *****/
194
195 /* Gets Date of purchase by user input from stdin. */
196
197 void get_Start_Date(void) {

```

```

198
199     struct tm ts;                // date type for t_ticket s_start date
200
201     int year, month, day;        // year, month, day as entered by user
202     bool is_ok = false;         // correctness of date format
203     char sPlayDate[11];        // Actual Drawing Date
204     bool first_input = true;    // indicates first attempt for input
205
206     do
207     {
208         if(first_input == true)
209             printf("Enter playing date (mm/dd/yyyy): ");
210         else
211             printf("Invalid input! Please correct: ");
212         scanf("%d/%d/%d", &month, &day, &year);
213         fflush(stdin);
214         is_ok = (isCorrectDateFormat(month, day, year));
215         first_input = false;
216
217     } while(is_ok == false);
218
219     ts.tm_year = year - 1900;
220     ts.tm_mon  = month - 1;
221     ts.tm_mday = day;
222
223     ts.tm_hour = 0;
224     ts.tm_min  = 0;
225     ts.tm_sec  = 1;
226     ts.tm_isdst = -1;
227
228     if ( mktime(&ts) == -1 )
229         ts.tm_wday = 7;
230
231     // strftime(sPlayDate, 40, "%A, %d-%B-%Y", &ts); <----
232
233     strftime(sPlayDate, 11, "%d.%m.%Y", &ts);
234
235
236     strcpy(current.T_Start , sPlayDate);                // Assign ticket Start Date to structure
237
238     is_ok = false;    // reset to false for next evaluation
239     first_input = true; // reset to true for next evaluation
240
241 }
242
243 /*****
244 * GET TICKET RUNTIME
245 *****/
246
247 /* Gets ticket runtime in weeks by user input from stdin.
248    Allowed ranged is 1-5 (weeks), 'm' (month) or 'p' (permanent) */
249
250
251 void get_T_Runtime(void) {
252
253     char rt[2];                // Ticket runtimet in weeks .
254     bool is_ok = false;        // correctness of date format
255     bool first_input = true;    // indicates first attempt for input
256
257     do
258     {
259         if(first_input == true)
260             printf("Enter ticket runtime (1-5,m,p): ");
261         else
262             printf("Invalid input! Please correct: ");
263         scanf("%s", rt);

```

```

264     fflush(stdin);
265     if(*rt=='1' || *rt=='2' || *rt=='3' || *rt=='4' || *rt=='5' || *rt=='m' || *rt=='p' ) {
266
267         is_ok = true;
268
269         /* Remove trailing newline, if there and add 0 terminator. */
270         if ((strlen(rt)>0) && (rt[strlen (rt) - 1] == '\n'))
271             rt[strlen (rt) - 1] = '\0';
272
273         strcpy(current.T_Runtime, rt);                // Assign ticket runtime to structure
274     }
275
276     first_input = false;
277
278     } while(is_ok == false);
279 }
280
281 /*****
282  * GET TICKET DRAWING DATE OF THE WEEK
283  *****/
284
285 /* Gets ticket drawing day of the week by user input from stdin.
286    Allowed ranged is s (Saturday), w (Wednesday) or b (Both - Saturday and
287    Wednesday) */
288
289 void get_T_D_Day(void){
290
291     char T_D_Day[2];          // Ticket runtime in weeks .
292     bool is_ok = false;       // correctness of date format
293     bool first_input = true;  // indicates first attempt for input
294
295     do
296     {
297         if(first_input == true)
298             printf("Enter ticket drawing day (s,w,b): ");
299         else
300             printf("Invalid input! Please correct: ");
301         scanf("%s", T_D_Day);
302         fflush(stdin);
303         if(*T_D_Day=='s' || *T_D_Day=='w' || *T_D_Day=='b') {
304
305             is_ok = true;
306
307             /* Remove trailing newline, if there and add 0 terminator. */
308             if ((strlen(T_D_Day)>0) && (T_D_Day[strlen (T_D_Day) - 1] == '\n'))
309                 T_D_Day[strlen (T_D_Day) - 1] = '\0';
310
311             strcpy(current.T_D_Day, T_D_Day);        // Assign ticket drawing day to structure
312         }
313
314         first_input = false;
315
316     } while(is_ok == false);
317 }
318
319 /*****
320  * GET GAME 77
321  *****/
322
323 /* Gets info by user if ticket is enabled for "Game 77" (German "Spiel 77").
324    Allowed ranged is y (yes) or n (no) */
325
326 void get_T_G77(void){
327
328     char T_G77[2];            // Indicates if Game 77 is active (y/n).
329     bool is_ok = false;       // Indicates correctness of date format

```

```

330     bool first_input = true;    // indicates first attempt for input
331
332     do
333     {
334         if(first_input == true)
335             printf("Enter if Game 77 is active (y,n): ");
336         else
337             printf("Invalid input! Please correct: ");
338         scanf("%s", T_G77);
339         fflush(stdin);
340         if(*T_G77=='y' || *T_G77=='n') {
341
342             is_ok = true;
343
344             /* Remove trailing newline, if there and add 0 terminator. */
345             if ((strlen(T_G77)>0) && (T_G77[strlen (T_G77) - 1] == '\n'))
346                 T_G77[strlen (T_G77) - 1] = '\0';
347
348             strcpy(current.T_G77, T_G77);    // Assign Game 77 (yes or no) to structure
349         }
350
351         first_input = false;
352
353     } while(is_ok == false);
354 }
355
356 /*****
357  * GET SUPER 6
358  *****/
359
360 /* Gets info by user if ticket is enabled for "Super 6".
361    Allowed ranged is y (yes) or n (no) */
362
363 void get_T_SU6(void){
364
365     char T_SU6[2];    // Indicates if Super 6 is active (y/n).
366     bool is_ok = false;    // Indicates correctness of user input
367     bool first_input = true;    // indicates first attempt for input
368
369     do
370     {
371         if(first_input == true)
372             printf("Enter if Super 6 is active (y,n): ");
373         else
374             printf("Invalid input! Please correct: ");
375         scanf("%s", T_SU6);
376         fflush(stdin);
377         if(*T_SU6=='y' || *T_SU6=='n') {
378
379             is_ok = true;
380
381             /* Remove trailing newline, if there and add 0 terminator. */
382             if ((strlen(T_SU6)>0) && (T_SU6[strlen (T_SU6) - 1] == '\n'))
383                 T_SU6[strlen (T_SU6) - 1] = '\0';
384
385             strcpy(current.T_SU6, T_SU6);    // Assign Super 6 (yes or no) to structure
386         }
387
388         first_input = false;
389
390     } while(is_ok == false);
391 }
392
393 /*****
394  * GET GLUECKSPIRALE
395  *****/

```



```

396
397  /* Gets info by user if ticket is enabled for "Glueckspirale".
398     Allowed ranged is y (yes) or n (no) */
399
400  void get_T_GSP(void){
401
402      char T_GSP[2];           // Indicates if Glueckspirale is active (y/n).
403      bool is_ok = false;      // Indicates correctness of user input
404      bool first_input = true; // indicates first attempt for input
405
406      do
407      {
408          if(first_input == true)
409              printf("Enter if Glueckspirale is active (y,n): ");
410          else
411              printf("Invalid input! Please correct: ");
412          scanf("%s", T_GSP);
413          fflush(stdin);
414          if(*T_GSP=='y' || *T_GSP=='n') {
415
416              is_ok = true;
417
418              /* Remove trailing newline, if there and add 0 terminator. */
419              if ((strlen(T_GSP)>0) && (T_GSP[strlen (T_GSP) - 1] == '\n'))
420                  T_GSP[strlen (T_GSP) - 1] = '\0';
421
422              strcpy(current.T_GSP, T_GSP);           // Assign Glueckspirale (yes or no) to structure
423          }
424
425          first_input = false;
426      } while(is_ok == false);
427
428  }
429
430  /*****
431  * GET LOTTERY NUMBERS
432  *****/
433
434  /* Get lottery numbers per row. 12 rows defined. Range of number is 1-49.*/
435
436  void get_T_Rows(void){
437
438      int T_Max_Row;           // Max number of rows used in this ticket
439      int i, j;                // Loop counter
440      int checksum;            // Checksum to validate numbers are in range of 1-49
441      int countInput;          // Used as count for input arguments of scanf per iteration
442      int n[12][6];            // Lottery number array
443      bool is_ok = false;      // Indicates correctness of user input
444      bool first_input = true; // indicates first attempt for input
445
446      // Query number of active rows (T_Max_Row)
447
448      do
449      {
450          if(first_input == true)
451              printf("Enter number of active rows (1-12): ");
452          else
453              printf("Invalid input! Please correct: ");
454          scanf("%d", &T_Max_Row);
455          fflush(stdin);
456          if(T_Max_Row > 0 && T_Max_Row < 13) {
457
458              is_ok = true;
459              current.T_Max_Row = T_Max_Row;           // Assign Glueckspirale (yes or no) to structure
460          }
461      }

```

```

462         first_input = false;
463
464     } while(is_ok == false);
465
466     // Query Lottery Numbers (T_Row[])
467
468     is_ok = false;
469     first_input = true;
470
471     // reset loop control variables
472     // reset loop control variables
473
474     do
475     {
476         // Initializing variables required to reset for each loop;
477         checksum = 0;
478
479         for(i = 0; i < 12; i++){
480             for(j = 0; j < 6; j++){
481                 n[j][j]=0;
482             }
483         }
484
485         if(first_input == true)
486             printf("Enter Lottery numbers per row separated by commas.\n");
487         else {
488             printf("Invalid input! Please correct!\n\n");
489         }
490
491         for(i = 0; i <= T_Max_Row - 1; i++) {
492
493             countInput = 0;
494
495             printf("Row %d: ", i + 1);
496             countInput = scanf("%d,%d,%d,%d,%d,%d", &n[i][0],&n[i][1],&n[i][2],&n[i][3],&n[i][4],&n[i][5]);
497             fflush(stdin);
498
499             if(countInput == 6){
500
501                 // Checks range of each number in the row
502                 for(j = 0; j < 6; j++){
503
504                     if(n[i][j] > 0 && n[i][j] < 50){
505
506                         checksum++;
507                         current.T_Row[i][j] = n[i][j];
508                     }
509                 }
510             }else {
511                 printf("\nInvalid number of arguments in input\n");
512                 checksum = 0;
513                 t_initialize();
514                 break;
515             }
516
517             if(countInput == 6 && checksum != (i+1) * 6){
518                 printf("\nInvalid value - All lottery numbers have to be in range from 1 to 49 \n");
519                 checksum = 0;
520                 t_initialize();
521                 break;
522             }
523         }
524
525         if(checksum == 6 * T_Max_Row){
526             is_ok = true;
527         }

```

```

528
529     first_input = false;
530
531     } while(is_ok == false);
532 }
533
534
535 /*****
536  * WRITE INPUT TO TICKET FILE
537  *****/
538
539
540
541 void write_Ticket(void){
542
543     // construct filename
544     char t_full_path[45];
545     strcpy(t_full_path, TicketFolder);
546     strcat(t_full_path, current.T_No);
547     strcat(t_full_path, T_EXT);
548
549     printf("\nFull path: %s\n", t_full_path);
550
551
552     // Open file and write
553     FILE *fp;
554     fp = fopen(t_full_path, "w");
555
556     if(fp == NULL) {
557
558         printf("\nTicket folder missing. Try to create now...\n");
559         system("mkdir tickets");
560         pFile = fopen(t_full_path, "w");
561         if(pFile == NULL) {
562             printf("Error opening %s for writing. Program terminated.", TicketFolder);
563             abort();
564         } else {
565             printf("Folder \"%s\" has been created.\n", TicketFolder);
566         }
567
568     } else {
569
570
571         fprintf(fp, "Ticket No:%s\n", current.T_No);
572         fprintf(fp, "Player:%s\n", current.T_Player);
573         fprintf(fp, "Play Date:%s\n", current.T_Start);
574         fprintf(fp, "Runtime:%s\n", current.T_Runtime);
575         fprintf(fp, "Weekday:%s\n", current.T_D_Day);
576         fprintf(fp, "Game 77:%s\n", current.T_G77);
577         fprintf(fp, "Super 6:%s\n", current.T_SU6);
578         fprintf(fp, "Glueckspirale:%s\n", current.T_GSP);
579         fprintf(fp, "Active Rows:%d\n", current.T_Max_Row);
580
581         for(int j = 0; j < 12; j++) {
582
583             fprintf(fp, "Row %2d:%d,%d,%d,%d,%d,%d\n", j+1, current.T_Row[j][0], current.T_Row[j][1], current.T_Row[j][2], current.T_Row[j][3], current.T_Row[j][4], current.T_Row[j][5]);
584         }
585
586         fclose(fp);
587
588         printf("\nTicket %s written.\n", t_full_path);
589     }
590
591 }

```

## t\_common.c

```
1  /*t_common.c | RLotto | gcc | v0.8.354.1715
2  * Console program for storing and evaluating lottery ticket results.
3  * -----
4  *
5  * Objective:    Common functions used in various parts of this program.
6  *
7  * Author:      Reinhard Rozumek
8  * Email:       reinhard@rozumek.de
9  * Created:     11/17/17
10 * Last mod:    02/04/18
11 *
12 * -----
13 * This file is part of RLotto.                                */
14
15
16 // HEADER SECTION
17
18 #include <stdio.h>
19 #include <stdbool.h>
20 #include <stdlib.h>
21 #include <string.h>
22 #include <dirent.h>
23 #include <ctype.h>
24 #include <time.h>
25 #include "rlotto.h"
26
27 /* GLOABL VARIABLES *****/
28
29 struct tm dd;                                // date type used for d_rawing d_ate
30
31
32 // FUNCTION DECLARATION
33
34
35 bool isCorrectTicketNo(char *n);
36 bool isCorrectDateFormat(int m, int d, int y);
37 bool isLeapYear(const int iYear);
38 void map_t_attributes(int choice);
39 void display_Ticket(void);
40
41
42 /******
43 * IsCorrectTicketNo
44 *****/
45 // Checks length and character (only '0' to '9' are allowed)
46
47 bool isCorrectTicketNo(char *n) {
48
49     bool result = false;
50     int x;
51     int y = 0;
52
53     // check for characters - only 0-9 are allowed
54     for(int i = 0; i < 7; i++) {
55         x = n[i] - 0;
56         if(x > 47 && x < 58)
57             y++;
58         else
59             break;
60     }
61
62     if(y == 7)
63         result = true;
64     return result;
65 }
```

```

66
67 /*****
68  * IsCorrectDateFormat
69  *****/
70
71 bool isCorrectDateFormat(int m, int d, int y) {
72
73     int ii = 0;          // incremented by 1 for each positive validation
74     int febdays;         // used for number of days depending on year
75
76     /* Checking month '***** */
77     if(m > 0 && m < 13)
78         ii++;
79     else
80         printf("\nInvalid value for month!\n");
81
82     /* Checking day depending on month '***** */
83
84     // Jan, Mar, May, Jul, Aug, Oct, Dec
85     if(m==1 || m==3 || m==5 || m==7 || m==8 || m==10 || m==12) {
86         if(d > 0 && d < 32)
87             ii++;
88         else
89             printf("\nInvalid value for day!\n");
90     }
91
92     // Feb (validating leap years)
93
94     if((isLeapYear(y)) == true)
95         febdays = 29;
96     else
97         febdays = 28;
98
99     if(m==2) {
100         if(d > 0 && d < (febdays + 1))
101             ii++;
102         else
103             printf("\nInvalid value for day!\n");
104     }
105
106     // Apr, Jun, Sep, Nov
107     if(m==4 || m==6 || m==9 || m==11) {
108         if(d > 0 && d < 31)
109             ii++;
110         else
111             printf("\nInvalid value for day!\n");
112     }
113
114     /* Checking year '***** */
115     if(y > 999 && y < 9999)                // to ensure 4 digits
116         ii++;
117     else
118         printf("\nInvalid value for year!\n");
119
120     /* Evaluating complete result '***** */
121
122     if(ii == 3)
123         return true;
124     else
125         return false;
126
127 }
128
129 /*****
130  * IsLeapYear
131  *****/

```

```

132
133 bool isLeapYear(const int iYear)
134 {
135     // Each year that could be divided by 4 without rest is a leap year.
136     // Exception: year could be divided by 100 without rest but not by 400.
137
138     if ((iYear % 400) == 0)
139         return true;
140     else if ((iYear % 100) == 0)
141         return false;
142     else if ((iYear % 4) == 0)
143         return true;
144
145     return false;
146 }
147
148 /*****
149  * MAP TICKET ATTRIBUTES
150  *****/
151
152 /* Map some structure data first to some more human readable values for display on stdout.
153    This is required since the input data for some ticket attributes differs from the output
154    format. E.g. y => yes
155
156    1: maps    current.T_Runtime    => display_runtime
157    2: maps    current.T_D_Day      => display_weekday
158    3: maps    current.T_G77        => display_G77
159    4: maps    current.T_SU6        => display_SU6
160    5: maps    current.T_GSP        => display_GSP
161
162    */
163
164 void map_t_attributes(int choice) {
165
166     // range of allowed values
167     char runtime_o1[2] = "1", runtime_o2[2] = "2", runtime_o3[2] = "3",
168     runtime_o4[2] = "4", runtime_o5[2] = "5", runtime_o6[2] = "m", runtime_o7[2] = "p";
169     char weekday_o1 [2] = "s", weekday_o2 [2] = "w", weekday_o3 [2] = "b";
170     char T_G77_o1[2] = "y", T_G77_o2[2] = "n";
171     char T_SU6_o1[2] = "y", T_SU6_o2[2] = "n";
172     char T_GSP_o1[2] = "y", T_GSP_o2[2] = "n";
173
174     switch(choice) {
175
176         // Runtime
177         case 1:
178
179             if(strcmp(current.T_Runtime, runtime_o1) == 0) strcpy(display_runtime, "1 week");
180             else if(strcmp(current.T_Runtime, runtime_o2) == 0) strcpy(display_runtime, "2 weeks");
181             else if(strcmp(current.T_Runtime, runtime_o3) == 0) strcpy(display_runtime, "3 weeks");
182             else if(strcmp(current.T_Runtime, runtime_o4) == 0) strcpy(display_runtime, "4 weeks");
183             else if(strcmp(current.T_Runtime, runtime_o5) == 0) strcpy(display_runtime, "5 weeks");
184             else if(strcmp(current.T_Runtime, runtime_o6) == 0) strcpy(display_runtime, "month");
185             else if(strcmp(current.T_Runtime, runtime_o7) == 0) strcpy(display_runtime, "permanent");
186             else strcpy(display_runtime, "");
187
188             break;
189
190         // Weekday
191         case 2:
192             if(strcmp(current.T_D_Day, weekday_o1) == 0) strcpy(display_weekday, "Sat");
193             else if(strcmp(current.T_D_Day, weekday_o2) == 0) strcpy(display_weekday, "Wed");
194             else if(strcmp(current.T_D_Day, weekday_o3) == 0) strcpy(display_weekday, "Wed + Sat");
195             else strcpy(display_weekday, "");
196
197             break;

```

```

198
199 // Game 77
200 case 3:
201
202     if(strcmp(current.T_G77, T_G77_o1) == 0) strcpy(display_G77, "yes");
203     else if(strcmp(current.T_G77, T_G77_o2) == 0) strcpy(display_G77, "no");
204     else strcpy(display_G77, "");
205
206     break;
207
208 // Super 6
209 case 4:
210
211     if(strcmp(current.T_SU6, T_SU6_o1) == 0) strcpy(display_SU6, "yes");
212     else if(strcmp(current.T_SU6, T_SU6_o2) == 0) strcpy(display_SU6, "no");
213     else strcpy(display_SU6, "");
214
215     break;
216
217 // Glueckspirale
218 case 5:
219
220     if(strcmp(current.T_GSP, T_GSP_o1) == 0) strcpy(display_GSP, "yes");
221     else if(strcmp(current.T_GSP, T_GSP_o2) == 0) strcpy(display_GSP, "no");
222     else strcpy(display_GSP, "");
223
224     break;
225
226     default: ;
227
228 }
229 }
230
231
232 /*****
233  * Display Ticket
234  *****/
235 /* Displays ticket on terminal to confirm selection. This function can be used
236 for new tickets before writing ticket to file system or for existing tickets.
237 A loop for confirming the selection is NOT part of the function itself. Note
238 that this function requires that the actual ticket data to display are already
239 expected to be in the current global ticket structure. */
240
241 void display_Ticket(void) {
242
243     int i;
244
245     /* Map some structure data first to some more human readable values for display on stdout */
246
247     map_t_attributes(1); // Runtime
248     map_t_attributes(2); // Weekday
249     map_t_attributes(3); // Game 77
250     map_t_attributes(4); // Super 6
251     map_t_attributes(5); // Glueckspirale
252
253     // Display ticket -----
254
255     printf("\n===== \n\n");
256     printf(" Ticket No: %-11sPlayer: %-26s Active Rows: %-10d\n", current.T_No, current.T_Player, current.T_Max_Row);
257     printf(" Date: %-16sTicket Runtime: %-19sWeekday: %-10s\n", current.T_Start, display_runtime, display_weekday);
258     printf(" Game 77: %-13sSuper 6: %-26sGlueckspirale: %-10s\n", display_G77, display_SU6, display_GSP);
259     printf("\n===== \n\n");
260
261     for(i = 0; i < 12; i++) {
262
263         printf(" Row %3d: %3d %3d %3d %3d %3d %3d\n", i+1, current.T_Row[i][0], current.T_Row[i][1], current.T_Row[i][2], curr

```

```

264     }
265
266     printf("\n===== \n\n");
267
268 }
269
270 /*****
271  * IsCorrectLotteryRow
272  *****/
273 checks for valid range and duplicates */
274
275 bool isCorrectLotteryRow(int *LotteryNo) {
276
277     int i, j; int v = 0; bool bDuplicate = false;
278
279     // checks for duplicates
280     for(i = 0; i < 6; i++) {
281         for(j = 0; j < 6; j++) {
282             if(i != j)
283                 if(LotteryNo[i] == LotteryNo[j])
284                     bDuplicate = true;
285         }
286     }
287
288     // checks for valid range
289     for(i = 0; i < 6; i++) {
290         if(LotteryNo[i] > 0 && LotteryNo[i] < 50)
291             v++;
292     }
293
294     if((v == 6) && (bDuplicate == false))
295         return true;
296
297     return false;
298 }
299
300 /*****
301  * Convert To Digit
302  *****/
303 converts single char in range of '1' to '9' to number. */
304
305 /* returns int value if in range '0'..'9' else returns -1 if not a number */
306
307 int convertToDigit( char c )
308 {
309     if ( c < '0' || c > '9' ) return -1;
310     return c - '0';
311 }
312
313 /*****
314  * Get Lottery Win Class
315  *****/
316 Function gets number of lottery matches per row and result from check of super
317 super number per ticket. The fuction returns the lottery win class. */
318
319 char *getWinClass(int matches, bool super ) {
320
321     if(super == false) {
322
323         switch(matches) {
324
325             case 0: return "no win"; break;
326             case 1: return "no win"; break;
327             case 2: return "no win"; break;
328             case 3: return "class VIII"; break;
329

```



```

330         case 4: return "class VI"; break;
331         case 5: return "class IV"; break;
332         case 6: return "class II"; break;
333         default: return "no win";
334     }
335
336     } else {
337
338         switch(matches) {
339
340             case 0: return "no win"; break;
341             case 1: return "no win"; break;
342             case 2: return "class IX"; break;
343             case 3: return "class VII"; break;
344             case 4: return "class V"; break;
345             case 5: return "class III"; break;
346             case 6: return "class I"; break;
347             default: return "no win";
348         }
349     }
350 }
351
352
353 /*****
354  * IsValidDrawingDate
355  *****/
356 Check for ticket validity against drawing date. Gets Drawing Date and returns
357 true or false by checking Ticket Start Date, Ticket Runtime and Ticket day of
358 week - all stored in the global ticket structure. In order to accomplish this,
359 the functions first needs to calculate the ticket end date. */
360
361 bool isValidDrawingDate(int dd_month, int dd_day, int dd_year) {
362
363     bool result;                // true if w_day_OK AND period_OK true. Otherwise false.
364     bool w_day_OK;              // true if drawing day of the week matches with ticket. Otherwise false.
365     bool period_OK;             // true if with ticket validity period. Otherwise false.
366     struct tm add;              // date type used for a_ctual d_rawing d_ate
367     struct tm tsd;              // date type used for t_ticket s_tart d_ate
368     struct tm ted;              // date type used for t_ticket e_nd d_ate
369     int ts_day, ts_month, ts_year; // representing year, month, day from ticket start date as integer values
370     char *str_day;              // Token of Ticket start date for day
371     char *str_month;            // Token of Ticket start date for month
372     char *str_year;             // Token of Ticket start date for year
373     char str_runtime;           // runtime range: 1,2,3,4,5,m_onth, p_ermanent
374     /* char str_d_day;           drawing day range: s_saturday, w_ednesday or b_oth*/
375     double diff_seconds1;        // time difference in seconds
376     double diff_seconds2;        // time difference in seconds
377     int dw_day;                  // drawing weekday (0,1,2,3,4,5,6)
378     char tw_day;                 // ticket week day (s, w or b)
379
380
381     result = false;
382
383
384     // build actual drawing date structure -----
385
386     add.tm_year = dd_year - 1900;
387     add.tm_mon  = dd_month - 1;
388     add.tm_mday = dd_day;
389
390     add.tm_hour = 0;
391     add.tm_min  = 0;
392     add.tm_sec  = 1;
393     add.tm_isdst = -1;          // Change for Summer Time !?
394
395     if (mktime(&add) == -1 )

```

```

396         add.tm_wday = 7;
397
398         // build ticket start date structure -----
399
400         str_day = strtok(current.T_Start, ".");
401         str_month = strtok(NULL, ".");
402         str_year = strtok(NULL, ".");
403
404         ts_day = atoi(str_day);
405         ts_month = atoi(str_month);
406         ts_year = atoi(str_year);
407
408         tsd.tm_year = ts_year - 1900;
409         tsd.tm_mon = ts_month - 1;
410         tsd.tm_mday = ts_day;
411
412         tsd.tm_hour = 0;
413         tsd.tm_min = 0;
414         tsd.tm_sec = 1;
415         tsd.tm_isdst = -1;          // Change for Summer Time !?
416
417         if (mktime(&tsd) == -1 )
418             tsd.tm_wday = 7;
419
420         // build ticket end date structure -----
421
422         str_runtime = current.T_Runtime[0];
423         //str_d_day = current.T_D_Day[0];
424
425         ted.tm_year = ts_year - 1900;
426         ted.tm_mon = ts_month - 1;
427         ted.tm_mday = ts_day;
428
429         ted.tm_hour = 0;
430         ted.tm_min = 0;
431         ted.tm_sec = 1;
432         ted.tm_isdst = -1;          // Change for Summer Time !?
433
434         switch (str_runtime) {
435
436             case '1': ted.tm_mday +=7; mktime(&ted); break;          // 1 week = 7 days
437             case '2': ted.tm_mday +=14; mktime(&ted); break;        // 2 weeks = 14 days
438             case '3': ted.tm_mday +=21; mktime(&ted); break;        // 3 weeks = 21 days
439             case '4': ted.tm_mday +=28; mktime(&ted); break;        // 4 weeks = 28 days
440             case '5': ted.tm_mday +=35; mktime(&ted); break;        // 5 weeks = 35 days
441             case 'm': ted.tm_mon +=1; mktime(&ted); break;          // 1 month = same date next month
442             case 'p': ted.tm_year +=25; mktime(&ted); break;        // permanent = 25 years
443             default: break;
444         }
445
446
447         // Check validity -----
448         // Condition 1: weekday 0=Sun, 1=Mon, 2=Tue, 3=Wed, 4=Thu, 5=Fri, 6=Sat
449         // Condition 2: Ticket end date is greater or equals actual drawing date
450         // Condition 3: Actual drawing date is grater or equals ticket start date
451         // Ticket has been validated against drawing date once all conditions above are evaluated true
452
453         diff_seconds1 = difftime(mktime(&add), mktime(&tsd));        // difference between actual drawing date and ticket start date
454         diff_seconds2 = difftime(mktime(&ted), mktime(&add));        // difference between ticket end date and actual drawing date
455
456         dw_day = add.tm_wday;          // day of the week for actual drawing date from console input
457         tw_day = current.T_D_Day[0];  // day of the week read from ticket (w, s or b)
458
459         // Check for correct weekday (condition 1)
460
461         w_day_OK = false;

```

```

462     period_OK = false;
463
464
465     switch (tw_day) {
466
467         case 's':
468
469             if(dw_day == 6) w_day_OK = true;
470             else printf("\nDrawing date is not a Saturday. Please enter correct drawing date.\n");
471             break;
472
473         case 'w':
474
475             if(dw_day == 3) w_day_OK = true;
476             else printf("\nDrawing date is not a Wednesday. Please enter correct drawing date.\n");
477             break;
478
479         case 'b':
480
481             if(dw_day == 3 || dw_day == 6) w_day_OK = true;
482             else printf("\nDrawing date is neither Wednesday nor Saturday. Please enter correct drawing date.\n");
483             break;
484
485         default:
486
487             printf("\nDay of Week from ticket not available. \n");
488             break;
489     }
490
491
492
493     // Check for correct validity period (condition 2 & 3)
494
495     if((diff_seconds1 >= 0) && (diff_seconds2 >= 0)) period_OK = true;
496     else printf("\nActual drawing date not in rage of valid ticket period. Please enter correct drawing date.\n");
497
498     // Total result for check of validity
499
500     if(w_day_OK == true && period_OK == true) result = true;
501     else result = 0;
502
503     /* Debug
504     printf("DEBUG add: %s\n", asctime(&add));
505     printf("DEBUG tsd: %s\n", asctime(&tsd));
506     printf("DEBUG ted: %s\n", asctime(&ted));
507     printf("DEBUG diff_seconds1: %f\n", diff_seconds1);
508     printf("DEBUG diff_seconds2: %f\n", diff_seconds2);
509     printf("DEBUG dw_day: %d\n", dw_day);
510     printf("DEBUG tw_day: %c\n", tw_day); */
511
512     return result;
513
514 }

```

## t\_delete.c

```
1  /*t_delete.c | RLotto | gcc | v0.8.354.1715
2  * Console program for storing and evaluating lottery ticket results.
3  * -----
4  *
5  * Objective:    Delete tickets from repository
6  *
7  * Author:      Reinhard Rozumek
8  * Email:      reinhard@rozumek.de
9  * Created:    10/08/17
10 * Last mod:   10/08/17
11 *
12 * -----
13 * This file is part of RLotto.                                */
14
15
16 // HEADER SECTION
17
18 #include <stdio.h>
19 #include <stdbool.h>
20 #include <stdlib.h>
21 #include <ctype.h>
22 #include <string.h>
23 #include <dirent.h>
24 #include "rlotto.h"
25
26
27 /* DELETE TICKET -----*/
28 /* Delete stored ticket in repository.
29 */
30 int deleteTicket(void) {
31     printf("\n\nDelete existing lottery ticket.\n");
32
33     return 0;
34 }
```

## t\_evaluate.c

```

1  /*t_evaluate.c | RLotto | gcc | v0.8.354.1715
2  * Console program for storing and evaluating lottery ticket resultt.
3  * -----
4  *
5  * Objective:    Evaluate selected ticket based on corresponding draw results
6  *
7  * Author:      Reinhard Rozumek
8  * Email:       reinhard@rozumek.de
9  * Created:     10/08/17
10 * Last mod:    02/11/18
11 *
12 * -----
13 * This file is part of RLotto.                                */
14
15
16 // HEADER SECTION
17
18 #include <stdio.h>
19 #include <stdbool.h>
20 #include <stdlib.h>
21 #include <ctype.h>
22 #include <string.h>
23 #include <dirent.h>
24 #include <time.h>
25 #include "rlotto.h"
26 #include "version.h"
27
28
29 /* GLOABL VARIABLES *****/
30
31 struct tm dd;                                // date type used for d_raving d_ate
32
33 /* FUCTION DECLARATION *****/
34
35 int enterInput(void);                        // enter drawing results
36 int checkLotto(void);                       // evaluate lottery result
37 int checkGame77(void);                      // evaluate Game 77 result
38 int checkSuper6(void);                     // evaluate Super 6 result
39 int checkGSP(void);                        // evaluate Glueckspirale result
40 int isCorrectDateFormat(int m, int d, int y); // validating date format
41 bool isValidDrawingDate(int dd_month, int dd_day, int dd_year); // validating date range
42 bool isCorrectLotteryRow(int *LotteryNo);   // checks valid range & duplicates
43 int convertToDigit( char c );              // converts single char in range of '1' to '9' to number.
44 char *getWinClass(int matches, bool bonus_super ); // returns win class based on lottery matches
45
46 /* *****
47 EVALUATE TICKET
48 *****
49
50 /* Enter actuals drawings results and evaluate against selected ticket. This
51 function create the output/result file and calls all sub functions for ticket
52 evaluation. */
53
54
55 // FIXME: (camelo#1#01/20/18): Adjust for new rules - remove Bonus number adjust win classed by Superzahl
56 // TODO: (camelo#2#01/03/18): Implement condition to evaluate only enabled options (e.g. G77)
57
58 int evaluateTicket(void) {
59
60     int sConfirm;                            // yes or no to confirm user input
61     char sPath[45];                          // Full pathname for result file
62     char sPrefix[14] = "Lotto-Result-";      // File prefix
63     char sPostfix[5] = ".txt";               // File extension
64     char sDrwDate[25];                       // Drawing Date formatted as part of filename
65

```

```

66     printf("\n\nEnter actual drawing result.\n");
67
68     // Call function to enter drawing results
69     enterInput();
70
71     // Final confirmation for starting evaluation
72     printf("\nEvaluate results now? [y/n]: ");
73
74     do {
75         sConfirm = tolower(getchar());
76     } while(sConfirm != 'y' && sConfirm != 'n');
77
78     if(sConfirm == 'y') {
79
80         // Create Filename
81         strftime(sDrwDate, N, "%Y-%m-%d", &dd); strcpy(sPath, ResultFolder); strcat(sPath, sPrefix);
82         strcat(sPath, current.T_No); strcat(sPath, "-"); strcat(sPath, sDrwDate); strcat(sPath, sPostfix);
83
84         // Open result file for output
85         pFile = fopen(sPath, "w");
86         if(pFile == NULL) {
87             printf("\nResult folder missing. Try to create now...\n");
88             system("mkdir results");
89             pFile = fopen(sPath, "w");
90             if(pFile == NULL) {
91                 printf("Error opening %s for writing. Program terminated.", sPath);
92                 abort();
93             } else {
94                 printf("Folder \"%s\" has been created.\n", ResultFolder);
95             }
96         }
97
98         // Output to result file first part (header information)
99         fprintf(pFile, "%s v%d.%d.%d.%d\n", THISPROG, MAJOR, MINOR, BUILD, REVISION);
100        fprintf(pFile, "Evaluating lottery results\n");
101        fprintf(pFile, "Lottery Ticket No: %s\n", current.T_No);
102
103        fprintf(pFile, "\nPlayers: %s\n", current.T_Player);
104
105        strftime(sDrwDate, N, "%A, %d-%b-%Y", &dd);
106
107        fprintf(pFile, "\nDrawing Date: %s\n", sDrwDate);
108        fprintf(pFile, "Lottery numbers: %i %i %i %i %i %i\n", ALN[0], ALN[1], ALN[2], ALN[3], ALN[4], ALN[5]);
109        fprintf(pFile, "Super number: %i\n", ASN);
110        fprintf(pFile, "Game 77: %s\n", cG77);
111        fprintf(pFile, "Super 6: %s\n", cSU6);
112
113        fprintf(pFile, "\nLottery Matches on %s\n", sDrwDate);
114
115        // Evaluate results
116        checkLotto(); checkGame77(); checkSuper6();
117        printf("\nWithout any warranty.\n");
118
119        // Final output for result file
120        fprintf(pFile, "\nWithout any warranty.\n");
121
122        // Close result file
123        fclose(pFile);
124        printf("\nResults written to %s.\n", sPath);
125
126    }
127
128    return 0;
129 }
130
131

```

```

132  /*****
133  * Enter Input
134  *****/
135
136  int enterInput() {
137
138      // Actual Play Date (drawing date) '*****'
139
140      int year, month, day;           // year, month, day as entered by user
141      bool is_ok = false;             //
142      bool date_format_ok = false;    // correctness of drawing date format
143      bool date_range_ok = false;     // validity of drawing date related to ticket
144      char sPlayDate[40];             // Actual Drawing Date
145      int i;                          // Actual Lottery Number Index
146      bool first_input = true;        // indicates first attempt for input
147      char sDrwDate[N];              // Drawing date formatted
148
149
150      while(date_format_ok == false || date_range_ok == false)
151      {
152
153          if(first_input == true)
154              printf("\nEnter drawing date (mm/dd/yyyy): ");
155          else
156              printf("Invalid input for drawing date! Please correct: ");
157          scanf("%d/%d/%d", &month, &day, &year);
158          fflush(stdin);
159
160          dd.tm_year = year - 1900;
161          dd.tm_mon  = month - 1;
162          dd.tm_mday = day;
163
164          dd.tm_hour = 0;
165          dd.tm_min  = 0;
166          dd.tm_sec  = 1;
167          dd.tm_isdst = -1;          // Change for Summer Time !?
168
169          if (mktime(&dd) == -1 )
170              dd.tm_wday = 7;
171
172          strftime(sPlayDate, 40, "%A, %d-%b-%Y", &dd);
173
174          date_format_ok = isCorrectDateFormat(month, day, year);
175          date_range_ok  = isValidDrawingDate(month, day, year);
176
177
178          first_input = false;
179
180      }
181
182
183
184      first_input = true;          // reset to true for next evaluation
185
186      // Actual Lottery Numbers '*****'
187
188      do {
189          // Initialize ALN
190          for(i = 0; i < 6; ++i) {
191              ALN[i] = 0;
192          }
193
194
195          if(first_input == true)
196              printf("Enter actual lottery numbers seperated by commas: ");
197          else

```

```

198         printf("Invalid input! /Lottery Numbers) Please correct: ");
199         scanf("%i,%i,%i,%i,%i,%i", &ALN[0], &ALN[1], &ALN[2], &ALN[3], &ALN[4], &ALN[5]);
200         fflush(stdin);
201         is_ok = (isCorrectLotteryRow(ALN));
202         first_input = false;
203
204     } while(is_ok == false);
205
206     first_input = true;    // reset to true for next evaluation
207
208     // Actual Lottery Super Number '-----'
209
210     do {
211         if(first_input == true)
212             printf("Enter actual super number: ");
213         else
214             printf("Invalid input! Please correct: ");
215         scanf("%i", &ASN);
216         fflush(stdin);
217         first_input = false;
218
219     } while(ASN < 0 || ASN > 9);
220
221     first_input = true;    // reset to true for next evaluation
222
223     // Actual Game 77 '-----'
224
225     if(current.T_G77[0] == 'y' ){
226
227         do {
228             if(first_input == true)
229                 printf("Enter actual Game 77 number: ");
230             else
231                 printf("Invalid input! Please correct: ");
232             scanf("%7[0123456789]", cG77);
233             fflush(stdin);
234             first_input = false;
235
236         } while((strlen(cG77)) < 7);
237
238         first_input = true;    // reset to true for next evaluation
239     }
240
241     // Actual Super 6 '-----'
242
243     if(current.T_SU6[0] == 'y'){
244
245         do {
246             if(first_input == true)
247                 printf("Enter actual Super 6 number: ");
248             else
249                 printf("Invalid input! Please correct: ");
250             scanf("%6[0123456789]", cSU6);
251             fflush(stdin);
252             first_input = false;
253
254         } while((strlen(cSU6)) < 6);
255
256         first_input = true;    // reset to true for next evaluation
257     }
258
259     // Actual Glueckspirale '-----'
260
261
262
263

```



```

264     // Console Output
265
266     strftime(sDrwDate, N, "%A, %d-%b-%Y", &dd);
267
268     printf("\nCheck your input:\n");
269     printf("\nDrawing Date: %s\n", sDrwDate);
270     printf("Actual lottery numbers: %i %i %i %i %i %i\n", ALN[0], ALN[1], ALN[2], ALN[3], ALN[4], ALN[5]);
271     printf("Actual super number: %i\n", ASN);
272     if(current.T_G77[0] == 'y')
273         printf("Actual Game 77: %s\n", cG77);
274     else
275         printf("Actual Game 77: N/A\n");
276     if(current.T_SU6[0] == 'y')
277         printf("Actual Super 6: %s\n", cSU6);
278     else
279         printf("Actual Super 6: N/A\n");
280     return 0;
281 }
282
283
284 /*****
285  * check Lotto
286  *****/
287
288 Evaluates actual lottery numbers against lottery ticket
289 in order to determine matches and win classes                                     */
290
291
292
293 int checkLotto() {
294
295     int RowNo, i, j;                                // row number, indizees
296     int MPR[NOLR];                                  // matches per lottery row
297     int WinRows = 0;                                // number of lottery rows with win
298     bool CSN;                                        // indicates correct super number matching last digit of the ticket number
299     char sDrwDate[N];                                // Drawing date formated
300     int iNOLR = current.T_Max_Row;                  // Number of lottery rows active on the ticket
301     char WinMsg[12];                                 // literal to show win class for ouput
302
303     // Initialize MPR and CSN
304
305     for(i = 0; i < NOLR; i++) {
306         MPR[i] = 0;
307     }
308
309     CSN = false;
310
311     // check for matches with actual lottery numbers '*****'
312
313     for(RowNo = 0; RowNo < NOLR; RowNo++)
314         for(i = 0; i < 6; i++)
315             for(j = 0; j < 6; j++)
316                 if(current.T_Row[RowNo][i] == ALN[j])
317                     MPR[RowNo]++;
318
319     // check for correct Super Number '*****'
320
321     if(ASN == convertToDigit(current.T_No[6]))
322         CSN = true;
323
324     // Generate output '*****'
325
326     // Console output + result file output for lottery results
327
328     strftime(sDrwDate, N, "%A, %d-%b-%Y", &dd);
329     printf("\nLottery Matches on %s\n", sDrwDate);

```

```

330
331 // Loop through lottery rows to generate console and file output for matches and win(s)
332
333 for(RowNo = 0; RowNo < NOLR; RowNo++) {
334
335     strcpy(WinMsg, getWinClass(MPR[RowNo], CSN));
336
337     if(strcmp(WinMsg, "no win") != 0)
338         WinRows++; //counting number of rows with win
339
340     switch(MPR[RowNo]) {
341
342         case 0:
343             printf("Row No %2i: %2i %2i %2i %2i %2i %2i\t(%s / no match)\n",RowNo + 1,current.T_Row[RowNo][0], current.
344             fprintf(pFile, "Row No %2i: %2i %2i %2i %2i %2i %2i\t(%s / no match)\n",RowNo + 1,current.T_Row[RowNo][0],
345             break;
346
347         case 1:
348             printf("Row No %2i: %2i %2i %2i %2i %2i %2i\t(%s / %i match)\n",RowNo + 1,current.T_Row[RowNo][0], current.
349             fprintf(pFile, "Row No %2i: %2i %2i %2i %2i %2i %2i\t(%s / %i match)\n",RowNo + 1,current.T_Row[RowNo][0],
350             break;
351         default:
352             if(CSN == true) {
353                 printf("Row No %2i: %2i %2i %2i %2i %2i %2i\t(%s / %i matches + correct super number)\n",RowNo + 1,curr
354                 fprintf(pFile, "Row No %2i: %2i %2i %2i %2i %2i %2i\t(%s / %i matches + correct super number)\n",RowNo
355             } else {
356                 printf("Row No %2i: %2i %2i %2i %2i %2i %2i\t(%s / %i Matches)\n",RowNo + 1,current.T_Row[RowNo][0], cu
357                 fprintf(pFile, "Row No %2i: %2i %2i %2i %2i %2i %2i\t(%s / %i Matches)\n",RowNo + 1,current.T_Row[RowNo
358             }
359             break;
360     }
361 }
362
363
364 switch(WinRows) {
365
366     case 0: {
367         if(iNOLR == 1) {
368             printf("\nThere is no win for any of %i row played in total.\n",iNOLR);
369             fprintf(pFile, "\nThere is no win for any of %i row played in total.\n",iNOLR);
370         } else {
371             printf("\nThere is no win for any of %i rows played in total.\n",iNOLR);
372             fprintf(pFile, "\nThere is no win for any of %i rows played in total.\n",iNOLR);
373         }
374         break;
375     }
376     case 1: {
377         if(iNOLR == 1) {
378             printf("\nThere is %i row with win of %i row played in total.\n",WinRows,iNOLR);
379             fprintf(pFile, "\nThere is %i row with win of %i row played in total.\n",WinRows,iNOLR);
380         } else {
381             printf("\nThere is %i row with win of %i rows played in total.\n",WinRows,iNOLR);
382             fprintf(pFile, "\nThere is %i row with win of %i rows played in total.\n",WinRows,iNOLR);
383         }
384         break;
385     }
386     default: {
387         printf("\nThere are %i rows with wins of %i row(s) played in total.\n",WinRows,iNOLR);
388     }
389 }
390
391 return 0;
392 }
393
394 /*****
395  * check Game ??

```

```

396 *****
397
398 Evaluates actual lottery numbers against lottery ticket
399 in order to determine matches and win classes */
400
401 int checkGame77() {
402
403     int ii; // index of ticket number array
404     int MatchG77 = 0; // matches Game 77
405     char WinClassG77[4]; // Game 77 win class
406
407
408     if(current.T_G77[0] == 'y' ){
409
410         for(ii = 6; ii >= 0; ii--) {
411             if(current.T_No[ii] == cG77[ii])
412                 MatchG77++;
413             else
414                 break;
415         }
416
417         if(MatchG77 > 0) {
418             switch(MatchG77) {
419
420                 case 1: strcpy(WinClassG77, "VII"); break;
421                 case 2: strcpy(WinClassG77, "VI"); break;
422                 case 3: strcpy(WinClassG77, "V"); break;
423                 case 4: strcpy(WinClassG77, "IV"); break;
424                 case 5: strcpy(WinClassG77, "III"); break;
425                 case 6: strcpy(WinClassG77, "II"); break;
426                 case 7: strcpy(WinClassG77, "I"); break;
427                 default: strcpy(WinClassG77, "---");
428             }
429
430             if(MatchG77 == 1) {
431                 printf("You have won Game 77 according winning class %s (%i digit matching).\n",WinClassG77,MatchG77);
432                 fprintf(pFile, "You have won Game 77 according winning class %s (%i digit matching).\n",WinClassG77,MatchG77);
433             }
434
435             if(MatchG77 > 1) {
436                 printf("You have won Game 77 according winning class %s (%i digits matching).\n",WinClassG77,MatchG77);
437                 fprintf(pFile, "You have won Game 77 according winning class %s (%i digits matching).\n",WinClassG77,MatchG77);
438             }
439
440             } else {
441                 printf("There is no win for Game 77.\n");
442                 fprintf(pFile, "There is no win for Game 77.\n");
443             }
444         } else {
445
446             printf("Game 77 is not appicable for this ticket.\n");
447             fprintf(pFile, "Game 77 is not appicable for this ticket.\n");
448         }
449     }
450
451     return 0;
452 }
453
454 *****
455 * check Super 6
456 *****
457
458 Evaluates actual lottery numbers against lottery ticket
459 in order to determine matches and win classes */
460
461 int checkSuper6() {

```

```

462
463
464     int ii;                                // index of ticket number array
465     int MatchSU6 = 0;                       // matches Super 6
466     char WinClassSU6[4];                   // Game 77 win class
467
468     if(current.T_SU6[0] == 'y'){
469
470         for(ii = 6; ii >= 0; ii--) {
471             if(current.T_No[ii] == cSU6[ii -1])
472                 MatchSU6++;
473             else
474                 break;
475         }
476
477         if(MatchSU6 > 0) {
478             switch(MatchSU6) {
479
480                 case 1: strcpy(WinClassSU6, "VI"); break;
481                 case 2: strcpy(WinClassSU6, "V"); break;
482                 case 3: strcpy(WinClassSU6, "IV"); break;
483                 case 4: strcpy(WinClassSU6, "III"); break;
484                 case 5: strcpy(WinClassSU6, "II"); break;
485                 case 6: strcpy(WinClassSU6, "I"); break;
486                 default: strcpy(WinClassSU6, "---");
487             }
488
489
490             if(MatchSU6 == 1) {
491                 printf("You have won Super 6 according winning class %s (%i digit matching).\n",WinClassSU6,MatchSU6);
492                 fprintf(pFile, "You have won Super 6 according winning class %s (%i digit matching).\n",WinClassSU6,MatchSU6);
493             }
494
495             if(MatchSU6 > 1) {
496                 printf("You have won Super 6 according winning class %s (%i digits matching).\n",WinClassSU6,MatchSU6);
497                 fprintf(pFile, "You have won Super 6 according winning class %s (%i digits matching).\n",WinClassSU6,MatchSU6);
498             }
499
500         } else {
501             printf("There is no win for Super 6.\n");
502             fprintf(pFile, "There is no win for Super 6.\n");
503
504         }
505     } else {
506
507         printf("Super 6 is not appicable for this ticket.\n");
508         fprintf(pFile, "Super 6 is not appicable for this ticket.\n");
509
510     }
511
512     return 0;
513 }
514
515
516 /*****
517  * check GLUCKSPIRALE
518  *****/
519
520 Evaluates ticket against actual result for 'Glueckspirale'. */
521
522 // TODO (camelo#1#01/03/18): Implement evaluation for Glueckspirale
523
524 int checkGSP() {
525
526     return 0;
527

```



## t\_select.c

```
1  /*t_select.c | RLotto | gcc | v0.8.354.1715
2  * Console program for storing and evaluating lottery ticket results.
3  * -----
4  *
5  * Objective:    Select stored ticket for evaluation
6  *
7  * Author:      Reinhard Rozumek
8  * Email:       reinhard@rozumek.de
9  * Created:     10/08/17
10 * Last mod:    12/28/17
11 *
12 * -----
13 * This file is part of RLotto.                                */
14
15 // HEADER SECTION
16
17 #include <stdio.h>
18 #include <stdbool.h>
19 #include <stdlib.h>
20 #include <ctype.h>
21 #include <string.h>
22 #include <dirent.h>
23 #include "rlotto.h"
24
25
26 /* FUCTION DECLARATION *****/
27
28 void read_Ticket(char *ticket_no);
29 void display_Ticket(void);
30
31
32 /* SELECT TICKET *****/
33 Search path of executable binary for lottery tickets and displays a sub menu
34 to select which ticket to open. Afterwards read_Ticket function is called to
35 read the ticket data from file into global variables. Finally and after user
36 confirms selected ticket the function for ticket evaluation is called.
37 *****/
38
39
40 int selectTicket(void) {
41
42     char ticket_no[7];
43
44     printf("\nTICKET SELECTION\n\n");
45
46     // Find all files in path of binary executable file. Requires dirent.h
47
48     int i = 0;
49     int i_min = 1, i_max;
50     int i_input = 0;
51     DIR *d;
52     struct dirent *dir;
53     char fn_array[100][12]; // Array filename with extension (str length + 1)
54
55     // First run just to count number of tickets
56     d = opendir(TicketFolder);
57
58     if (d)
59     {
60         while ((dir = readdir(d)) != NULL)
61         {
62             char *fn = dir->d_name; // fn: file name
63             char *ext = strrchr(fn, '.'); // ext: file extension
64             if(strcmp(ext, T_EXT) == 0) // File extension for lottery tickets
65             {
```

```

66         i++;
67     }
68 }
69
70     closedir(d);
71     i_max = i;
72 }
73
74
75
76 // Second run to read ticket file names in array for all files matching file extension
77 d = opendir(TicketFolder);
78
79 if (d)
80 {
81     i = 0; // Reset counter i
82     while ((dir = readdir(d)) != NULL)
83     {
84         char *fn = dir->d_name; // fn: file name
85         char *ext = strchr(fn, '.'); // ext: file extension
86         if(strcmp(ext, T_EXT) == 0) // File extension for lottery tickets
87         {
88             i++;
89             strcpy(fn_array[i-1],fn);
90             printf("%3i --> Ticket Number: %.*s File Name: %s\n", i, 7, fn + 0, fn_array[i-1]);
91         }
92     }
93     closedir(d);
94 }
95
96
97 // i equals null --> no ticket found
98 if(i == 0)
99 {
100     // no ticket found
101     printf("\nNo ticket found in selected directory.\n");
102 }
103 else
104 {
105     printf("\n%i ticket(s) found in selected directory.\n", i_max);
106     do {
107         printf("\nEnter number between %i and %i: ",i_min, i_max);
108         scanf("%d", &i_input);
109         if(i_input < 1 || i_input > i_max)
110             if(i_input < 1 || i_input > i_max)
111             {
112                 printf("\n \"%d\" is not between %i and %i !\n",i_input, i_min, i_max);
113                 printf("\n \"%d\" is not between %i and %i !\n",i_input, i_min, i_max);
114             }
115     }while(i_input < 1 || i_input > i_max);
116
117     strncpy(ticket_no, fn_array[i_input - 1] + 0,7);
118     ticket_no[7] = '\0';
119     printf("\nTicket No %s has been selected.\n", ticket_no);
120 }
121
122
123
124 // Call function for reading selected ticket
125
126 read_Ticket(ticket_no);
127
128 return 0;
129 }
130
131 /* READ TICKET *****

```

```

132 Reads selected ticket into ticket structure
133 *****/
134
135 void read_Ticket(char *ticket_no) {
136
137     FILE *fp; // file pointer
138     char line[MAX_LINE_LENGTH]; // array for line string
139     int lnr; // line number of input file
140     char *description; // left token of separated input line contains line description
141     char *value; // right token of separated input line contains line value
142     char *token1, *token2, *token3; // token 1-3 for lottery numbers
143     char *token4, *token5, *token6; // token 4-6 for lottery numbers
144     int sConfirm; // yes or no to confirm ticket for further evaluation
145
146
147     // construct filename
148     char t_filename[45];
149     strcpy(t_filename, TicketFolder);
150     strcat(t_filename, ticket_no);
151     strcat(t_filename, T_EXT);
152
153     // Open file for reading -----
154
155     lnr = 0;
156     fp = fopen(t_filename, "r");
157
158     if(fp == NULL) {
159
160         printf("Error opening file!\n");
161
162     } else {
163
164         while(fgets(line, MAX_LINE_LENGTH, fp) != NULL){
165
166             strtok(line, "\n"); // Remove trailing new line character
167
168             lnr++;
169
170             // Parsing input and copy into current ticket structure -----
171
172             // separate input line
173
174             description = strtok(line, ":");
175             value = strtok(0, ":");
176
177             // reading values into ticket structure
178
179             switch(lnr){
180
181                 case 1:
182                     strcpy(current.T_No, value); break;
183                 case 2:
184                     strcpy(current.T_Player, value); break;
185                 case 3:
186                     strcpy(current.T_Start, value); break;
187                 case 4:
188                     strcpy(current.T_Runtime, value); break;
189                 case 5:
190                     strcpy(current.T_D_Day, value); break;
191                 case 6:
192                     strcpy(current.T_G77, value); break;
193                 case 7:
194                     strcpy(current.T_SU6, value); break;
195                 case 8:
196                     strcpy(current.T_GSP, value); break;
197                 case 9:

```



```

198         current.T_Max_Row = atoi(value); break;
199     case 10:
200
201         token1 = strtok(value, ","); current.T_Row[lnr -10][0] = atoi(token1);
202         token2 = strtok(0, ","); current.T_Row[lnr -10][1] = atoi(token2);
203         token3 = strtok(0, ","); current.T_Row[lnr -10][2] = atoi(token3);
204         token4 = strtok(0, ","); current.T_Row[lnr -10][3] = atoi(token4);
205         token5 = strtok(0, ","); current.T_Row[lnr -10][4] = atoi(token5);
206         token6 = strtok(0, ","); current.T_Row[lnr -10][5] = atoi(token6);
207         break;
208
209     case 11:
210
211         token1 = strtok(value, ","); current.T_Row[lnr -10][0] = atoi(token1);
212         token2 = strtok(0, ","); current.T_Row[lnr -10][1] = atoi(token2);
213         token3 = strtok(0, ","); current.T_Row[lnr -10][2] = atoi(token3);
214         token4 = strtok(0, ","); current.T_Row[lnr -10][3] = atoi(token4);
215         token5 = strtok(0, ","); current.T_Row[lnr -10][4] = atoi(token5);
216         token6 = strtok(0, ","); current.T_Row[lnr -10][5] = atoi(token6);
217         break;
218
219     case 12:
220
221         token1 = strtok(value, ","); current.T_Row[lnr -10][0] = atoi(token1);
222         token2 = strtok(0, ","); current.T_Row[lnr -10][1] = atoi(token2);
223         token3 = strtok(0, ","); current.T_Row[lnr -10][2] = atoi(token3);
224         token4 = strtok(0, ","); current.T_Row[lnr -10][3] = atoi(token4);
225         token5 = strtok(0, ","); current.T_Row[lnr -10][4] = atoi(token5);
226         token6 = strtok(0, ","); current.T_Row[lnr -10][5] = atoi(token6);
227         break;
228
229     case 13:
230
231         token1 = strtok(value, ","); current.T_Row[lnr -10][0] = atoi(token1);
232         token2 = strtok(0, ","); current.T_Row[lnr -10][1] = atoi(token2);
233         token3 = strtok(0, ","); current.T_Row[lnr -10][2] = atoi(token3);
234         token4 = strtok(0, ","); current.T_Row[lnr -10][3] = atoi(token4);
235         token5 = strtok(0, ","); current.T_Row[lnr -10][4] = atoi(token5);
236         token6 = strtok(0, ","); current.T_Row[lnr -10][5] = atoi(token6);
237         break;
238
239     case 14:
240
241         token1 = strtok(value, ","); current.T_Row[lnr -10][0] = atoi(token1);
242         token2 = strtok(0, ","); current.T_Row[lnr -10][1] = atoi(token2);
243         token3 = strtok(0, ","); current.T_Row[lnr -10][2] = atoi(token3);
244         token4 = strtok(0, ","); current.T_Row[lnr -10][3] = atoi(token4);
245         token5 = strtok(0, ","); current.T_Row[lnr -10][4] = atoi(token5);
246         token6 = strtok(0, ","); current.T_Row[lnr -10][5] = atoi(token6);
247         break;
248
249     case 15:
250
251         token1 = strtok(value, ","); current.T_Row[lnr -10][0] = atoi(token1);
252         token2 = strtok(0, ","); current.T_Row[lnr -10][1] = atoi(token2);
253         token3 = strtok(0, ","); current.T_Row[lnr -10][2] = atoi(token3);
254         token4 = strtok(0, ","); current.T_Row[lnr -10][3] = atoi(token4);
255         token5 = strtok(0, ","); current.T_Row[lnr -10][4] = atoi(token5);
256         token6 = strtok(0, ","); current.T_Row[lnr -10][5] = atoi(token6);
257         break;
258
259     case 16:
260
261         token1 = strtok(value, ","); current.T_Row[lnr -10][0] = atoi(token1);
262         token2 = strtok(0, ","); current.T_Row[lnr -10][1] = atoi(token2);
263         token3 = strtok(0, ","); current.T_Row[lnr -10][2] = atoi(token3);

```

```

264         token4 = strtok(0, ","); current.T_Row[lmr -10][3] = atoi(token4);
265         token5 = strtok(0, ","); current.T_Row[lmr -10][4] = atoi(token5);
266         token6 = strtok(0, ","); current.T_Row[lmr -10][5] = atoi(token6);
267         break;
268
269     case 17:
270
271         token1 = strtok(value, ","); current.T_Row[lmr -10][0] = atoi(token1);
272         token2 = strtok(0, ","); current.T_Row[lmr -10][1] = atoi(token2);
273         token3 = strtok(0, ","); current.T_Row[lmr -10][2] = atoi(token3);
274         token4 = strtok(0, ","); current.T_Row[lmr -10][3] = atoi(token4);
275         token5 = strtok(0, ","); current.T_Row[lmr -10][4] = atoi(token5);
276         token6 = strtok(0, ","); current.T_Row[lmr -10][5] = atoi(token6);
277         break;
278
279     case 18:
280
281         token1 = strtok(value, ","); current.T_Row[lmr -10][0] = atoi(token1);
282         token2 = strtok(0, ","); current.T_Row[lmr -10][1] = atoi(token2);
283         token3 = strtok(0, ","); current.T_Row[lmr -10][2] = atoi(token3);
284         token4 = strtok(0, ","); current.T_Row[lmr -10][3] = atoi(token4);
285         token5 = strtok(0, ","); current.T_Row[lmr -10][4] = atoi(token5);
286         token6 = strtok(0, ","); current.T_Row[lmr -10][5] = atoi(token6);
287         break;
288
289     case 19:
290
291         token1 = strtok(value, ","); current.T_Row[lmr -10][0] = atoi(token1);
292         token2 = strtok(0, ","); current.T_Row[lmr -10][1] = atoi(token2);
293         token3 = strtok(0, ","); current.T_Row[lmr -10][2] = atoi(token3);
294         token4 = strtok(0, ","); current.T_Row[lmr -10][3] = atoi(token4);
295         token5 = strtok(0, ","); current.T_Row[lmr -10][4] = atoi(token5);
296         token6 = strtok(0, ","); current.T_Row[lmr -10][5] = atoi(token6);
297         break;
298
299     case 20:
300
301         token1 = strtok(value, ","); current.T_Row[lmr -10][0] = atoi(token1);
302         token2 = strtok(0, ","); current.T_Row[lmr -10][1] = atoi(token2);
303         token3 = strtok(0, ","); current.T_Row[lmr -10][2] = atoi(token3);
304         token4 = strtok(0, ","); current.T_Row[lmr -10][3] = atoi(token4);
305         token5 = strtok(0, ","); current.T_Row[lmr -10][4] = atoi(token5);
306         token6 = strtok(0, ","); current.T_Row[lmr -10][5] = atoi(token6);
307         break;
308
309     case 21:
310
311         token1 = strtok(value, ","); current.T_Row[lmr -10][0] = atoi(token1);
312         token2 = strtok(0, ","); current.T_Row[lmr -10][1] = atoi(token2);
313         token3 = strtok(0, ","); current.T_Row[lmr -10][2] = atoi(token3);
314         token4 = strtok(0, ","); current.T_Row[lmr -10][3] = atoi(token4);
315         token5 = strtok(0, ","); current.T_Row[lmr -10][4] = atoi(token5);
316         token6 = strtok(0, ","); current.T_Row[lmr -10][5] = atoi(token6);
317         break;
318
319     default:
320         printf("\n Error parsing ticket file.\n");
321
322     }
323
324 }
325
326 fclose(fp);
327
328 }
329

```

```

330
331 // Display selected Ticket -----
332
333 display_Ticket();
334
335 // confirm for evaluation -----
336
337 printf("Evaluate this ticket now? [y/n]: ");
338
339 do {
340     sConfirm = tolower(mygetc());
341     if(sConfirm != 'y' && sConfirm != 'n')
342         printf("\nEnter \"y\" or \"n\"");
343     if(sConfirm == 'y')
344         evaluateTicket();
345     if(sConfirm == 'n') {
346         printf("\nReturning to main menu.\n");
347         t_initialize();
348         // exit statement removed due to compiler warning (
349     }
350
351 } while(sConfirm != 'y' && sConfirm != 'n');
352
353 }

```

## create\_rlotto\_tex\_file.py

```
1  #!/usr/bin/python
2  # read the *.c, *.h and *.py files from RLOTTO project and
3  # create a nice, beautified PDF document with it.
4  # The output of this script further processed by lualatex
5
6  import argparse
7  import datetime
8  now = datetime.datetime.now()
9
10
11  parser = argparse.ArgumentParser(description='Create PDF manual from source code')
12  parser.add_argument('--header',      help='*.h files', required=True)
13  parser.add_argument('--csource',     help='*.c files', required=True)
14  parser.add_argument('--python',      help='*.c files', required=False)
15
16  args = parser.parse_args()
17
18  LATEX1="""\documentclass[a4paper,10pt]{scrartcl}
19  \\\KOMAOptions{DIV=12}
20  \\\parindent=0pt
21  \\\usepackage{minted}
22
23  \\\setminted[C]{linenos,fontsize=\\footnotesize,tabsize=4}
24  \\\setminted[make]{linenos,fontsize=\\footnotesize,tabsize=4}
25  \\\setminted[python]{linenos,fontsize=\\footnotesize,tabsize=4}
26
27  % the following is needed for syntax highlighting
28  \\\usepackage{color,hyperref}
29
30  \\\hypersetup{backref,hidelinks,
31  colorlinks=false}
32  \\\definecolor{dkgreen}{rgb}{0,0.6,0}
33  \\\definecolor{gray}{rgb}{0.5,0.5,0.5}
34  \\\definecolor{mauve}{rgb}{0.58,0,0.82}
35  \\\begin{document}
36  \\\underline{\\Large{\\textbf{RLOTTO Code Manual}}}}\\newline
37  """
38
39  LATEX2="""\\bigskip
40  \\tableofcontents
41  """
42
43  print(LATEX1)
44  print(str(now))
45  print(LATEX2)
46
47
48
49  #output Makefile
50  print("\\\\newpage\\section{Makefile}")
51  print("\\\\inputminted{make}{../Makefile}\\\\newpage")
52
53  # output *.h
54  print("\\\\newpage\\section{Header files}")
55  for f in args.header.split(" "):
56      if f:
57          t = f.replace("_","\\_")
58          print("\\\\subsection*{\\texttt{" + t + "}}")
59          print("\\\\addcontentsline{toc}{subsection}{\\texttt{" + t + "}}")
60          print("\\\\inputminted{C}{../" + f + "}\\\\newpage")
61
62  # output *.c
63  print("\\\\section{Sourcecode}")
64  for f in args.csource.split(" "):
65      if f:
```

```

66         t = f.replace("_", "\\_")
67         print("\\subsection*{\\texttt{" + t + "}}")
68         print("\\addcontentsline{toc}{subsection}{\\texttt{" + t + "}}")
69         print("\\inputminted{C}{./" + f + ".}\\newpage")
70
71     if args.python:
72         t = args.python.replace("_", "\\_")
73         print("\\subsection*{\\texttt{" + t + "}}")
74         print("\\addcontentsline{toc}{subsection}{\\texttt{" + t + "}}")
75         print("\\inputminted{python}{" + args.python + "}\\newpage")
76
77
78     # example ticket
79     print("\\section{Examples}")
80     print("\\subsection*{Ticket Input}")
81     print("\\addcontentsline{toc}{subsection}{Ticket Input}")
82     print("\\inputminted{text}{./1234567.tck}\\newpage")
83
84     # example results
85     print("\\subsection*{Output Result}")
86     print("\\addcontentsline{toc}{subsection}{Output Result}")
87     print("\\inputminted{text}{./results/Lotto-Result-2017-11-12.txt}\\newpage")
88
89     print("\\end{document}")

```

## 4 Examples

### Ticket Input

Ticket No:1234567  
Player:Reinhard Rozumek  
Play Date:19.11.2017  
Runtime:1  
Weekday:s  
Game 77:y  
Super 6:y  
Glueckspirale:n  
Active Rows:6  
Row 1:4,6,11,13,17,31  
Row 2:15,22,30,35,36,43  
Row 3:9,22,28,34,43,47  
Row 4:16,27,29,40,42,26  
Row 5:16,25,39,40,44,48  
Row 6:5,10,14,28,33,40  
Row 7:0,0,0,0,0,0  
Row 8:0,0,0,0,0,0  
Row 9:0,0,0,0,0,0  
Row 10:0,0,0,0,0,0  
Row 11:0,0,0,0,0,0  
Row 12:0,0,0,0,0,0

## Output Result

RLOTTO v0.5.293.1523  
Evaluating lottery results  
Lottery Ticket No: 3124567

Players: Max Mustermann

Drawing Date: Sunday, 12-Nov-2017  
Lottery numbers: 1 2 3 4 5 6  
Bonus number: 8  
Super number: 9  
Game 77: 1234567  
Super 6: 123456

Lottery Matches on Sunday, 12-Nov-2017

Row No 1:	38 40 41 42 44 47	(no win / no match)
Row No 2:	11 17 18 36 33 45	(no win / no match)
Row No 3:	19 20 30 41 46 48	(no win / no match)
Row No 4:	0 0 0 0 0 0	(no win / no match)
Row No 5:	0 0 0 0 0 0	(no win / no match)
Row No 6:	0 0 0 0 0 0	(no win / no match)
Row No 7:	0 0 0 0 0 0	(no win / no match)
Row No 8:	0 0 0 0 0 0	(no win / no match)
Row No 9:	0 0 0 0 0 0	(no win / no match)
Row No 10:	0 0 0 0 0 0	(no win / no match)
Row No 11:	0 0 0 0 0 0	(no win / no match)
Row No 12:	0 0 0 0 0 0	(no win / no match)

There is no win for any of 12 rows played in total.  
You have won Game 77 according winning class IV (4 digits matching).  
There is no win for Super 6.

Without any warranty.