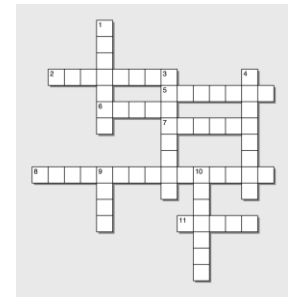


**Code / Project** : CME1252 / 3  
**Year / Semester** : 2019-2020 Spring Semester  
**Duration** : 4 weeks



## Project: Word Puzzle

The aim of this project is to develop a two-player game that guesses correctly the specific words in the puzzle table. When all spaces are properly filled with the words, the puzzle will be completed.

### General Information

Word puzzle game consists of a puzzle matrix (15 x 15) and a word list (dictionary, max. 100 words), given as text files, with the names puzzle.txt and word\_list.txt respectively. The puzzle.txt file includes binary values where the 1s symbolize the letters and 0s indicate empty spaces. After these files are read, the screen is designed and the game starts.

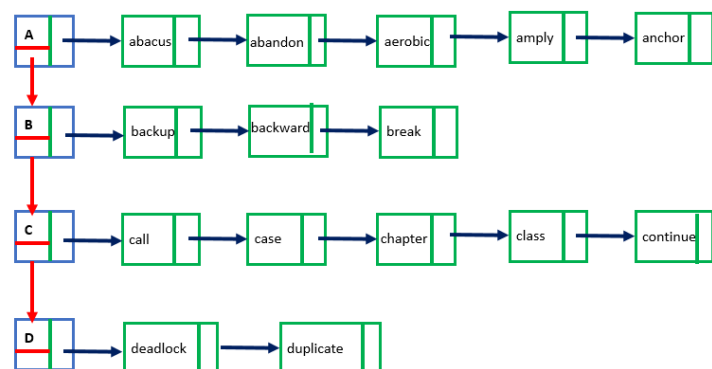
### Game Steps

Each player guesses a letter from the word list and try to find a word. When a player places a letter in a position, if the placement is correct, the player gets point and continues to insert letters, if it is inappropriate, the turn goes to the second player. The second player tries to guess another word by placing a letter. The player gets one point for each correct action. A word is completed when its last letter is guessed. The player who completes a word gets 10 points. When all the words are completed on the board, the game ends and the player who has the highest score wins the game.

### Game Rules

1- Initially, puzzle.txt is read and screen is created as shown in sample screens. In the text file, **the first letter of each word will be given.**

2- After reading word\_list text file, you are expected to create **Single Link List (SLL)** to sort the words alphabetically. Then, the words in SLL are inserted into a **Multi Linked List (MLL)** sequentially as shown in the figure. **Note that all the words in word list does not have to be in puzzle board.**



3- Each completed word should be removed from **MLL**, and signed as “completed” in **Single Linked List (SLL)**. Completed words should be shown on the screen.

4- The player can record his name and the score that he/she has earned and if he/she earns a score within top-10 results, he/she will be displayed in the High-Score table which is given as text file. High Score table will contain highest 10 game scores of all time and will be created using only **Double Linked List (DLL)**.

5- When the game ends, the words in the puzzle and the words that do not settle in the puzzle are written on the screen. High score table should also be written on the screen.

### Score Calculation

Each player gets 1 point for each correct letter by checking MLL. A player can continue guessing letters until he/she places wrong letter. A player cannot try to guess another word without completing one word. When the last letter is entered, the solution file is checked to see whether the word is placed correctly.

-If the word is guessed correctly;

- Player gets 10 points.
- Then, a question should appear on the screen. The Turkish meaning of this word should be asked in choices. When he/she answers the question correctly, he/she will get an extra 10 points.

-If the word is guessed wrong;

- If completed word is not correct, player gets -2 points per letter and the wrong letters are deleted from the puzzle screen.

## Sample Screens

WORD = 0

012345678901234

0																			
1	C		P															E	
2																			
3																	A	R	
4		H	S		L														
5		H	S		L														
6	R																		
7																	A		
8	F		E		S														
9																			
0		E		T														F	
1																			
2																			
3																	T		
4	E	N																	

Player1 gets 1 point.

SCORE: PLAYER1 = 0    PLAYER2 = 0

+-WORD-LIST-----+

[ ] ART	[ ] PRETENSE
[ ] ATTEMPT	[ ] REPEAT
[ ] CAREER	[ ] SKILL
[ ] CREW	[ ] STAR
[ ] EDICT	[ ] TALK
[ ] ENDEMIC	[ ] TELL
[ ] ENHANCE	
[ ] EXTERIOR	
[ ] FAILURE	
[ ] FEEL	
[ ] FIERCE	
[ ] HAPPENS	
[ ] LEAD	
[ ] PACKET	

+-WORD-LIST-----+

WORD = 0

012345678901234

0																			
1	C		P															E	
2																			
3																	A	R	
4		H	S		L														
5		H	S		L														
6	R																		
7																	A		
8	F		E		S														
9																			
0		E		T														F	
1																			
2																			
3																	T		
4	E	N																	

Player1 gets 1 point.

SCORE: PLAYER1 = 1    PLAYER2 = 0

+-WORD-LIST-----+

[ ] ART	[ ] PRETENSE
[ ] ATTEMPT	[ ] REPEAT
[ ] CAREER	[ ] SKILL
[ ] CREW	[ ] STAR
[ ] EDICT	[ ] TALK
[ ] ENDEMIC	[ ] TELL
[ ] ENHANCE	
[ ] EXTERIOR	
[ ] FAILURE	
[ ] FEEL	
[ ] FIERCE	
[ ] HAPPENS	
[ ] LEAD	
[ ] PACKET	

+-WORD-LIST-----+

...

...

WORD = 1

012345678901234

0																			
1	C		P															E	
2																			
3																	A	R	

Player1 gets 1 point.

SCORE: PLAYER1 = 6    PLAYER2 = 0

+-WORD-LIST-----+

[ ] ART	[ ] PRETENSE
[ ] ATTEMPT	[ ] REPEAT
[ ] CAREER	[ ] SKILL
[ ] CREW	[ ] STAR

+-WORD-LIST-----+

4	H	S	L			[ ]	EDICT	[ ]	TALK
5						[ ]	ENDEMIC	[ ]	TELL
6	R					[ ]	ENHANCE		
7				A		[ ]	EXTERIOR		
8	F	E	S			[ ]	FAILURE		
9						[ ]	FEEL		
0		E	T	F		[ ]	FIERCE		
1						[ ]	HAPPENS		
2						[ ]	LEAD		
3				T		[ ]	PACKET		
4	ENHANCE					+-----+			

The word "ENHANCE" is placed correctly. PLAYER1 gets 10 points.  
 What is the meaning of enhance in Turkish? Please enter your option.  
 a) geliřtirmek b) deęiřtirmek c) onaylamak  
 Answer:

WORD = 1	SCORE: PLAYER1 = 6	PLAYER2 = 0					
012345678901234	+-WORD-LIST-----+						
0	[ ]	ART	[ ]	PRETENSE			
1	C	P	E	[ ]	ATTEMPT	[ ]	REPEAT
2				[ ]	CAREER	[ ]	SKILL
3			AR	[ ]	CREW	[ ]	STAR
4	H	S	L	[ ]	EDICT	[ ]	TALK
5				[ ]	ENDEMIC	[ ]	TELL
6	R			[ ]	ENHANCE		
7			A	[ ]	EXTERIOR		
8	F	E	S	[ ]	FAILURE		
9				[ ]	FEEL		
0		E	T	F	[ ]	FIERCE	
1				[ ]	HAPPENS		
2				[ ]	LEAD		
3			T	[ ]	PACKET		
4	ENHANCE					+-----+	

The word "ENHANCE" is placed correctly. PLAYER1 gets 10 points.  
 What is the meaning of enhance in Turkish? Please enter your option.  
 a) geliřtirmek b) deęiřtirmek c) onaylamak  
 Answer: A

WORD = 1	SCORE: PLAYER1 = 26	PLAYER2 = 0					
012345678901234	+-WORD-LIST-----+						
0	[ ]	ART	[ ]	PRETENSE			
1	C	P	E	[ ]	ATTEMPT	[ ]	REPEAT
2				[ ]	CAREER	[ ]	SKILL
3			AR	[ ]	CREW	[ ]	STAR
4	H	S	L	[ ]	EDICT	[ ]	TALK
5				[ ]	ENDEMIC	[ ]	TELL
6	R			[X]	ENHANCE		
7			A	[ ]	EXTERIOR		
8	F	E	S	[ ]	FAILURE		
9				[ ]	FEEL		
0		E	T	F	[ ]	FIERCE	
1				[ ]	HAPPENS		
2				[ ]	LEAD		
3			T	[ ]	PACKET		
4	ENHANCE					+-----+	

Answer is correct. Player1 gets extra 10 points.  
 ...  
 ...

```

WORD = 20                                SCORE: PLAYER1 = 120  PLAYER2 = 55
012345678901234  +-WORD-LIST-----+
0  ██████████  | [X]ART      [X]PRETENSE  |
1  CREW PRETENSE | [X]ATTEMPT [X]REPEAT  |      High Score Table
2  A ██████ X   | [X]CAREER  [X]SKILL   |      1-Player1
3  R ██████ ART  | [X]CREW    [X]STAR    |      2-Emre
4  E H SKILL ████ | [X]EDICT   [X]TALK    |      3-Tuğçe
5  E A ████ E ████ | [X]ENDEMIC [X]TELL    |      4-Ezgi
6  REPEAT A ████ I | [X]ENHANCE  |      5-Osman
7  ████ P ████ D A O | [X]EXTERIOR  |      ...
8  FIERCE ██████ STAR | [X]FAILURE   |      ...
9  A N N ████ T ████ | [X]FEEL     |
0  I S EDICT E ████ F | [X]FIERCE   |
1  L ████ E ████ A M E | [X]HAPPENS   |
2  U ████ M ████ L P E | [X]LEAD     |
3  R ████ I ████ K TEL | [X]PACKET    |
4  ENHANCE ██████  +-WORD-LIST-----+

Player1 won the game.
Uncompleted Words -> Setup Branch Working ...

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### Suggested Weekly Program

1. Discussing the problem and designing classes. Creating necessary variables/data structures.
2. Reading word files. Designing the screen. Cursor movement. Implementation of SLL and MLL.
3. Letters and word controls on SLL and MLL. Score calculation and designing Double Linked List.
4. Implementation High-score table and error controls and remaining parts of the project

<b>First Evaluation:</b> 04.05.2020 <b>Report:</b> 04.05.2020	<b>Final Evaluation:</b> 15.05.2020 (powerpoint + poster + <b>Presentation in english</b> ) <b>Report:</b> 15.05.2020
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