A SOFTWARE ON
15-Puzzle Game

Project report

Towards the fulfillment of the requirement for

SOFTWARE DEVELOPMENT LAB 1

Course Code : CSE - 2142

Department of Computer Science and Engineering
TMSS Engineering College, Bogura.

Reported by :

Name : Mazedul

ID : 1737820124

Session : 2016 – 17

Date of submission : 6 August, 2018

Table of Contents

Chapter 1

Introduction

Overview :

The 15 – puzzle is a sliding puzzle that square and consists of a frame number of numbered square tiles in random order with one tile missing. The puzzle also exists in other sizes, particularly the smaller 8-puzzle. If the size is 3x3 tiles, the puzzle is called the 8-puzzle or 9 puzzle and if 4x4 tiles, the puzzle is called named is called the 15-puzzle or 16-puzzle named, respectively , for the number of tiles and the number of spaces. The object of the puzzle is to place the tiles in order by making sliding moves that use the empty space.

Objective :

The aim of work is to implement the 15 puzzle problem for android phones an overcom the drawbacks of existing solution.

- To develop an application follows International Standard.
- To develop fast and small size application to reduce time.
- To develop an interactive android application.
- To develop an application that challenges user's brain.

Chapter 2

Background Study

The proposed project has been implemented as a course Software Development Lab, so it has been required to a lot of background studies. As the project aimed to make a platform that has graphics, so it has implement with basic tools and technologies.

One of such basic technology is C++ which combines the features of graphics and graphical elements like rectangle, triangle, circle, music etc. All the elements were not implemented here but needed to study.

The basic tool is Clion . To apply the code a platform is needed and the platform is Arch Linux.

Chapter 3

Problem Description

As the project is designed a platform where graphical and non-graphical both interface will work at a same time. That's why the problem is defined based on its requirements. There are two types of requirements as functional and non-functional requirements are applicable to this project.

Functional Requirement :

- Play
- Solution
- Instruction
- Exit
- About me

Non-Functional Requirement :

- Performance
- Reliability
- Flexibility

Requirement for Development :

Area of project : Arch linux

IDE : Clion

Graphics : SFML

Language : C++ Programming language

Chapter 4

System Analysis

Existing System :

There are many existing software for 15-puzzle problem developed in different technologies. Branch and Bound Algorithm is better than other Algorithms because it evaluates each node using the cost and utility functions.

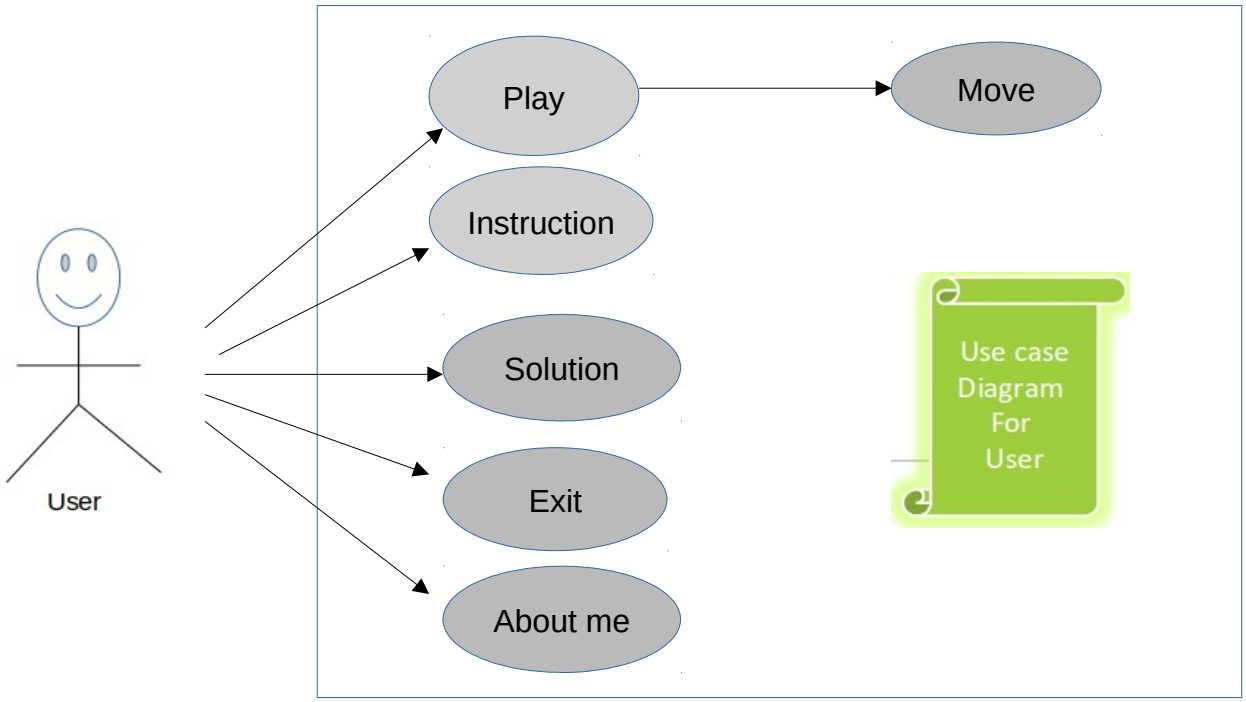
Proposed System :

The aim of work is to implement the 15 puzzle problem for Arch linux and to overcome the drawbacks of existing solution.

Chapter 5

System design

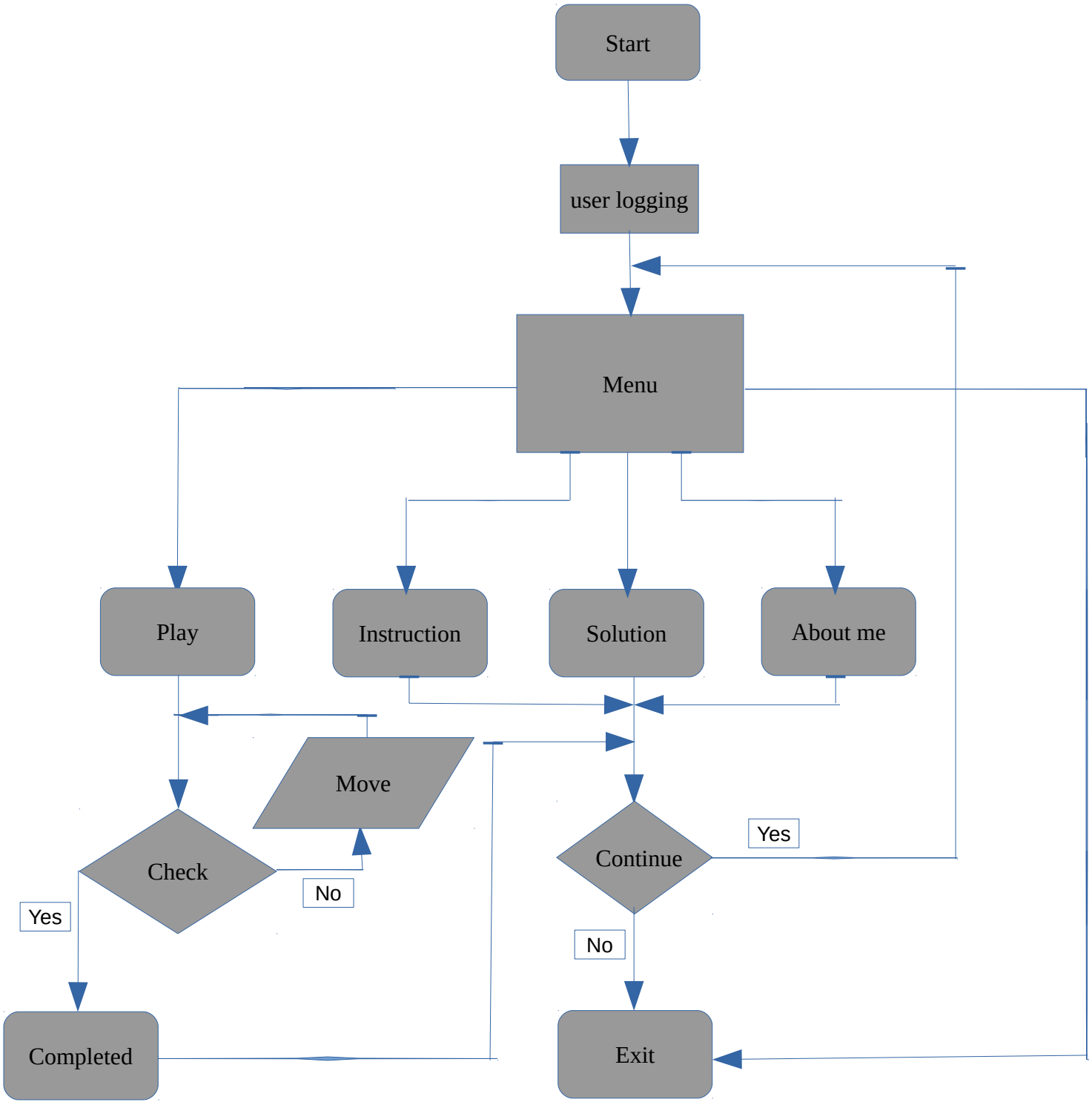
The Use Case diagram for 15-Puzzle Game game is shown in Fig (a)



Fig(a) : Use case diagram of for user

Chapter 6

Flow chart



Chapter 7

Future plan

- Difficulty or levels can be increased.
- System should remember current moves when directly closed the game.
- Undo function should be provide.

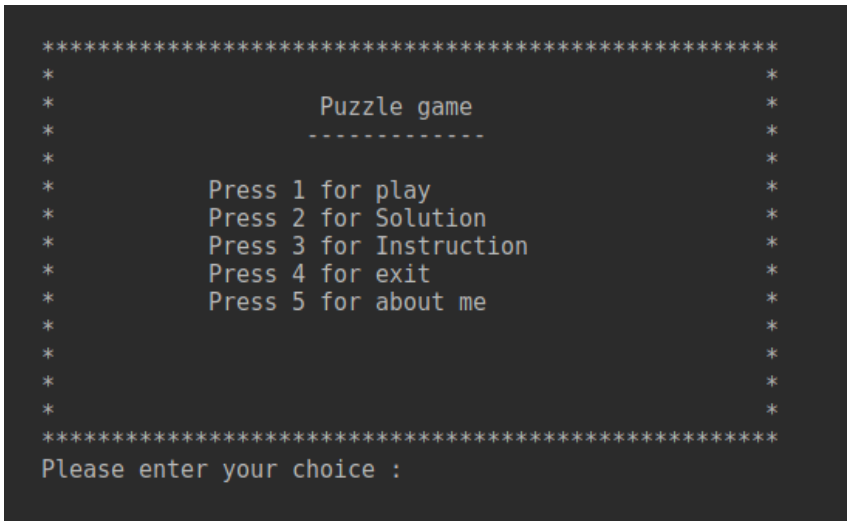
Conclusion

- Helps the user to better understand the 15 puzzle problem of ADA.
- This game is a good exercise for user's brain.
- Each time when the user play this game he face a new random number puzzle or a new shuffle puzzle so this make interest of user in to this game.

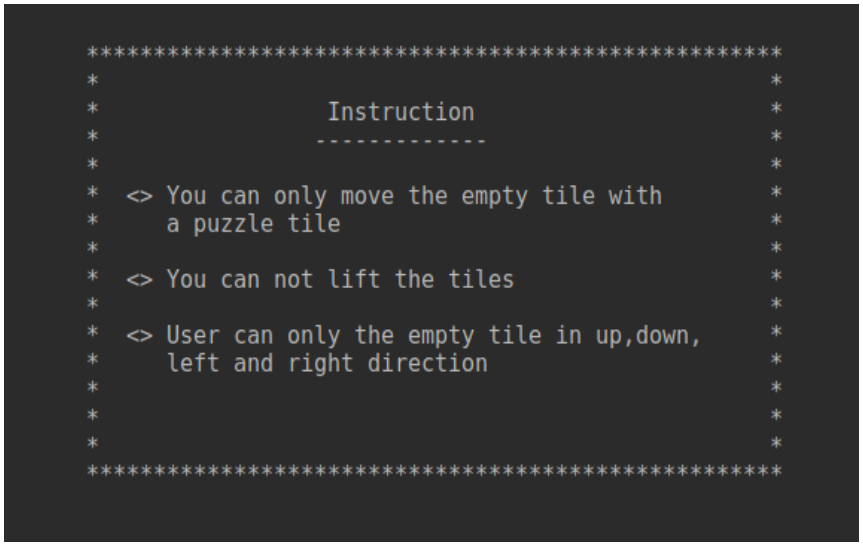
Chapter 8

Screenshots of Project

User Interface

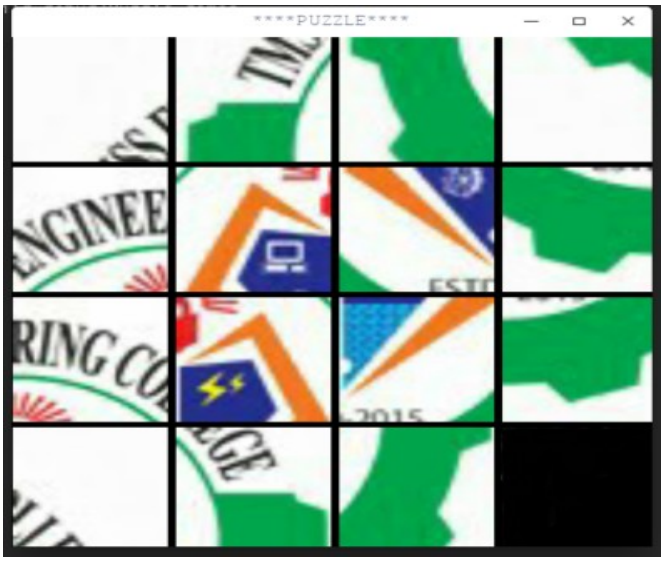


Instruction



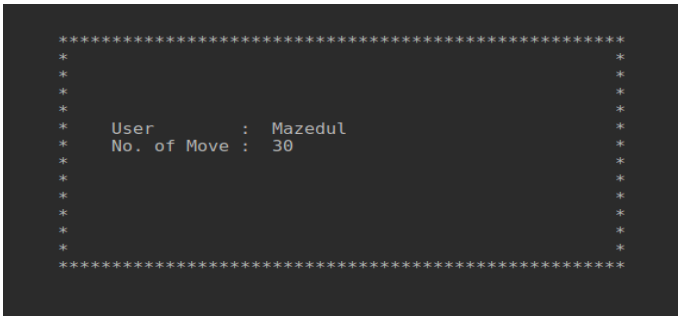
Screenshots of Project

Play Game



After Play

No of move



Chapter 9

Reference :

Link[1]

Link[2]

1. https://github.com/MORTAL2000/15-Puzzle-Game
2. https://en.sfml-dev.org/forums/index.php?topic=10245