CS103-COMPUTER PROGRAMMING-

SPRING 2015

SEMESTER PROJECT REPORT

PROJECT TITLE:

VOLLEY BALL GAME

PROJECT THEME:

SEMESTER:

2ND SEMESTER

DEVELOPED BY:

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INTRODUCTION:

This is a Volleyball game with whom you are familiar with. If someone is a Volleyball fan then he will love to play this game. It is a great activity to do in the free time and relax your mind. It is a two-player game and both players are controlled by the keyboard. Each player has to hit the ball with the safe side so that the ball doesn't touch the net or the ground in order to avoid from foul. You have to play with a perfect timing to hit the ball and win the game.

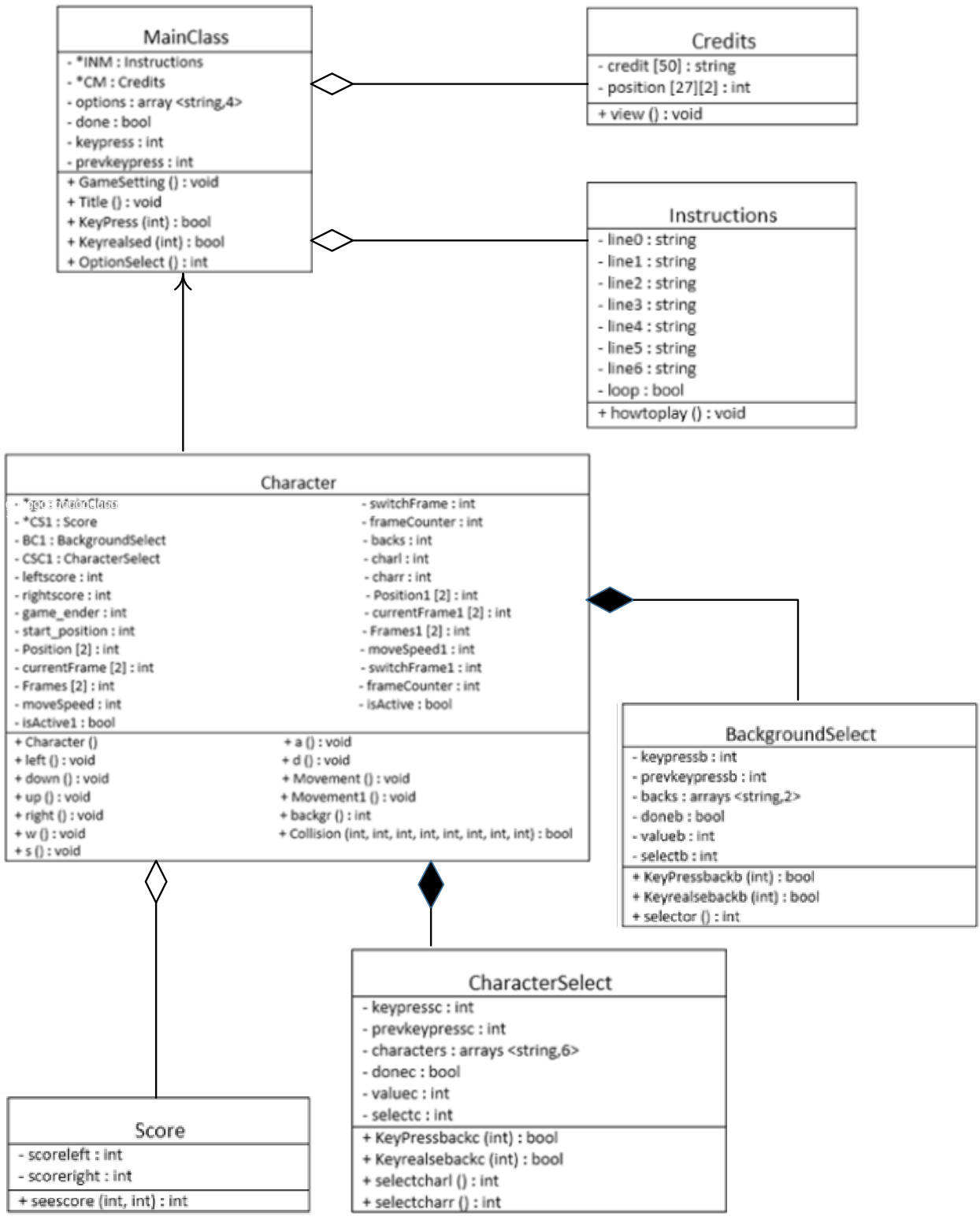
NEED FOR THE PROJECT:

This project is a wind up for probably all the concepts covered during the semester. It makes the developers learn a new experience and in motivating them to show their capabilities. It gives a chance to learn new things and providing a joyful experience to the programmers. It is a project which not only gives the user the joy of playing but also creates a friendly and animated 2D gameplay. The game is much easier to play for audience of age ranging from 8 years old or more.

UNIQUENESS OF THE PROJECT:

This project is different from the others as it only uses allegro as it's sole function bearer. It not only nurtures a programmer's mind as a freelancer but also creates a real world simulation of the market value of his product and the changes that he needs to implement to cover it. It also gives the coders an idea of the workings of the graphical user interface and how it enhances the use of graphics as a tool of attraction for the users. The project's main and sole purpose is to create an enjoyable experience for both the players.

UML DIAGRAM:


MainClass
- *INM : Instructions
- *CM : Credits
- options : array <string,4>
- done : bool
- keypress : int
- prevkeypress : int
+ GameSetting () : void
+ Title () : void
+ KeyPress (int) : bool
+ Keyrealsed (int) : bool
+ OptionSelect () : int
Credits
- credit [50] : string
- position [27][2] : int
+ view () : void
Instructions
- line0 : string
- line1 : string
- line2 : string
- line3 : string
- line4 : string
- line5 : string
- line6 : string
- loop : bool
+ howtoplay () : void
Character
- *go : MainClass
- *CS1 : Score
- BC1 : BackgroundSelect
- CSC1 : CharacterSelect
- leftscore : int
- rightscore : int
- game_ender : int
- start_position : int
- Position [2] : int
- currentFrame [2] : int
- Frames [2] : int
- moveSpeed : int
- isActive1 : bool
- switchFrame : int
- frameCounter : int
- backs : int
- charl : int
- charr : int
- Position1 [2] : int
- currentFrame1 [2] : int
- Frames1 [2] : int
- moveSpeed1 : int
- switchFrame1 : int
- frameCounter : int
- isActive : bool
+ Character ()
+ left () : void
+ down () : void
+ up () : void
+ right () : void
+ w () : void
+ s () : void
+ a () : void
+ d () : void
+ Movement () : void
+ Movement1 () : void
+ backgr () : int
+ Collision (int, int, int, int, int, int, int, int) : bool
BackgroundSelect
- keypressb : int
- prevkeypressb : int
- backs : arrays <string,2>
- doneb : bool
- valueb : int
- selectb : int
+ KeyPressbackb (int) : bool
+ Keyrealsebackb (int) : bool
+ selector () : int
CharacterSelect
- keypressc : int
- prevkeypressc : int
- characters : arrays <string,6>
- donec : bool
- valuec : int
- selectc : int
+ KeyPressbackc (int) : bool
+ Keyrealsebackc (int) : bool
+ selectcharl () : int
+ selectcharr () : int
Score
- scoreleft : int
- scoreright : int
+ seescore (int, int) : int

HEADER FILES:

NO.	HEADER FILE	FUNCTIONS	PURPOSE
1.	<allegro.h>	Install_sound(DIGI_AUTODETECT, MIDI_AUTODETECT, 0) Set_gfx_mode(GFX_AUTODETECT_WINDOWED, 1200, 600, 0, 0) etc.	Install sound for game. Set screen size.
2.	<array>	Array<string,4>	Declare an array of type string and size 4.
3.	<string>	string line	To declare string type variable.
4.	<cstdlib>	rand()	Generates random number.
5.	<ctime>	srand(time(0))	Creates changes in the algorithm of rand( ) function, with change of time.
6.	<math.h>	cos(theta) sin(theta)	Calculate cosine of angle theta. Calculate sine of angle theta.

ALGORITHM:

To do various calculations we have used certain formulas and conversion methods/formula. These methods helps in calculating sophisticated values. Following are the algorithms we had used in the program.

1. DEGREE(x) int ((x)/360.0*0xFFFFFF)
   This formula changes the given angle to allegro angle. This formula is defined in <math.h> library.

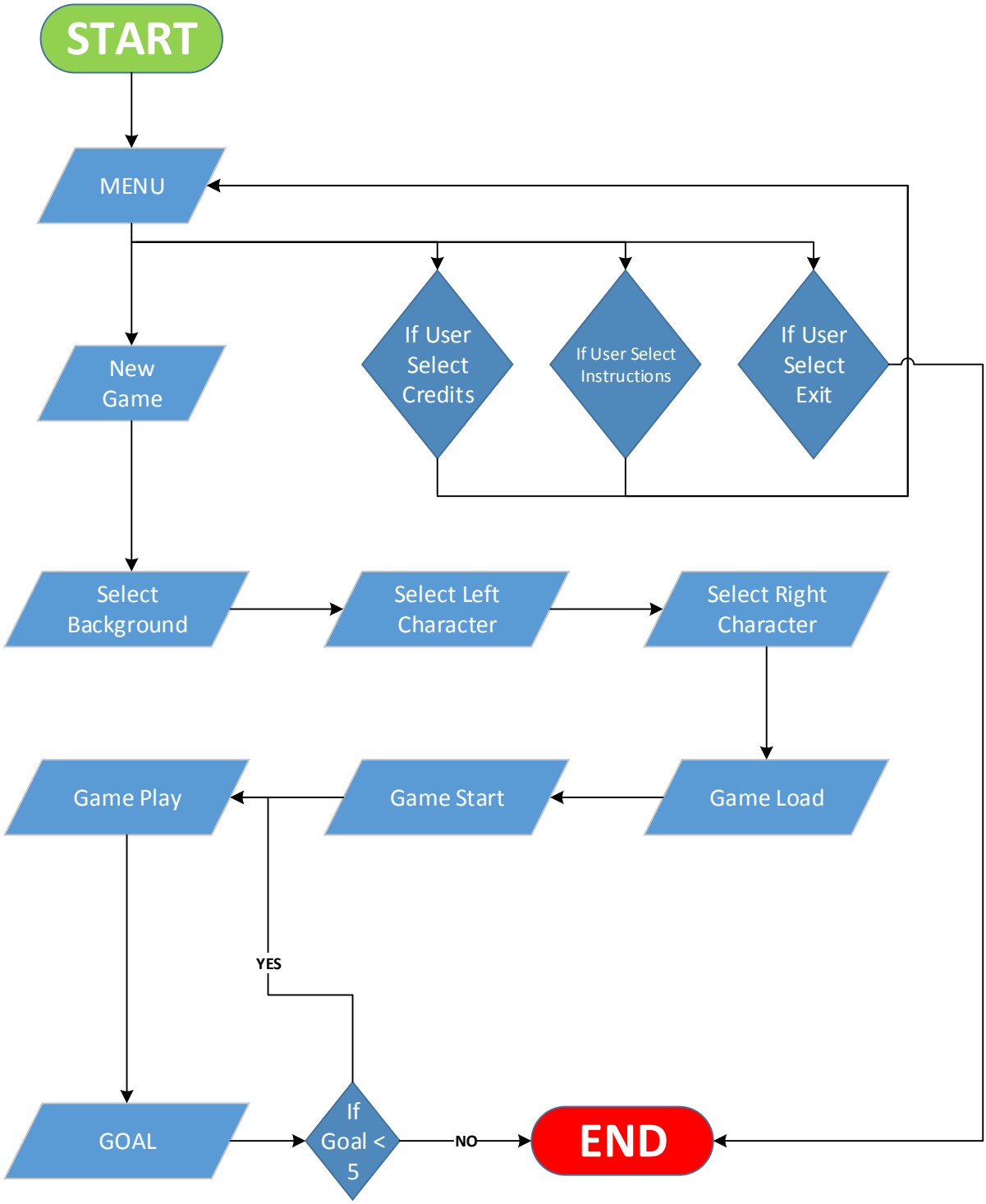
2. velocityX = velocity * cos(theta) * multi
   This formula calculates the velocity of the ball along x-axis.

3. velocityY = velocity * sin(theta) * multi
   This formula calculates the velocity of the ball along y-axis.

4. x = x + (velocityX * dt)
   This function helps in updating the x-coordinate of the ball w.r.t velocity along x-axis and change in time.

5. y = y + (velocityY * dt) + 0.5 * (dt * dt)
   This function helps in updating the y-coordinate of the ball w.r.t velocity along y-axis and change in time, adding the square of the time change divided by 2.

FLOW CHART:


START
MENU
New Game
If User Select Credits
If User Select Instructions
If User Select Exit
Select Background
Select Left Character
Select Right Character
Game Load
Game Start
Game Play
YES
GOAL
If Goal < 5
NO
END

SOURCE CODE:

background.h

character.h

characterselect.h

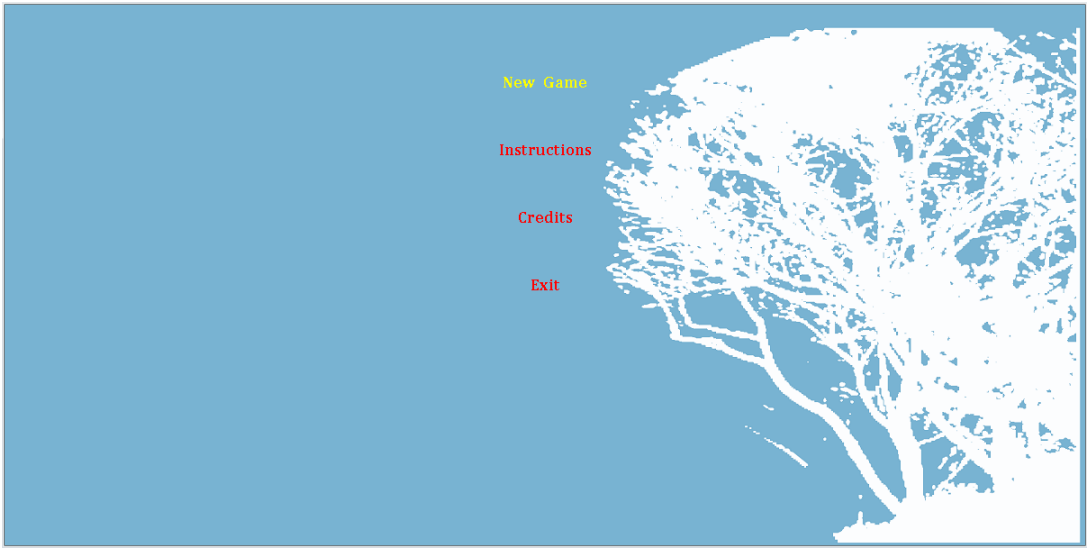
credit.h

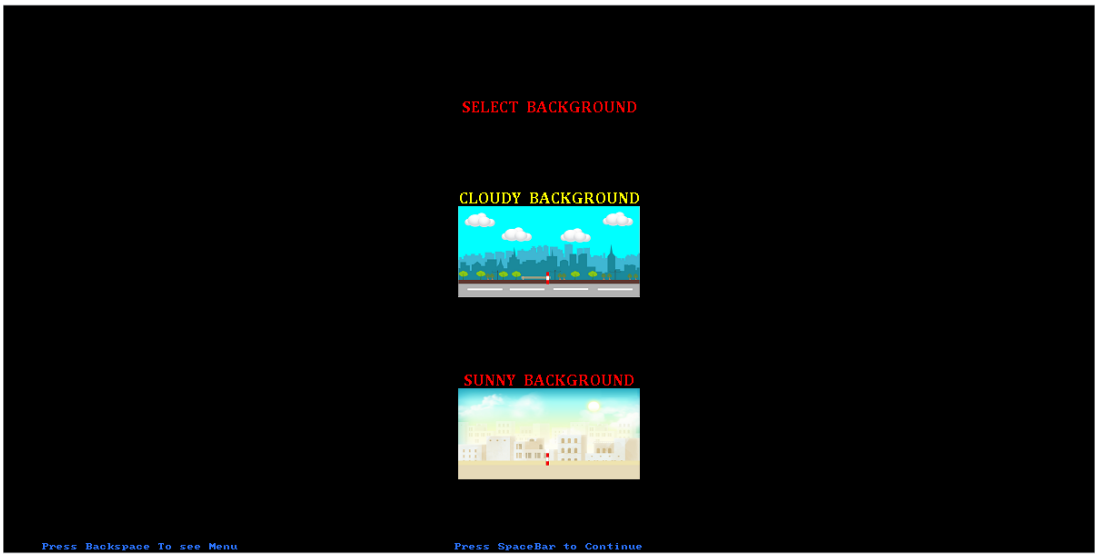
header.h

instruction.h

score.h

SCREEN SHOTS:






SELECT PLAYER LEFT
JEGURA
CHOLRA
SIROON
DAMUZA
SINGEERA
FEERANGA
Press Backspace To see Menu
Press ENTER to Continue


LOADING

FUTURE ENHANCEMENTS:

This game could be furthermore enhanced by adding levels in which the scoring will be graded by the number of skills, adding more players on each side and introducing some more rules in the game to make the game more realistic for providing more fun to the users. It can also be enhanced by creating a power bar which, when filled, will give the player an opportunity to make an ultimate goal against its opponent using the character's main ability. Each character will have its own ultimate power and will be able to use it once the power bar fills up.

REFERENCES:

https://www.allegro.cc/resource/Libraries

http://alleg.sourceforge.net/stabledocs/en/alleg010.html

https://wiki.allegro.cc/index.php?title=Allegro_5_Tutorial/Displays

http://www.cppgameprogramming.com/cgi/nav.cgi?page=allegbasics

http://devpaks.org/details.php?devpak=1