

CLASSES:

- INPUT VALIDATION
- MENU
- ROOM
 - ARACHNOphOBIA
 - COULDRPhOBIA
 - ANATIDAEPHOBIA
 - PHASMOPHOBIA
 - MYSOPHOBIA
 - THANATOPHOBIA
- PHOBIA
 - SPIDER
 - CLOWN
 - DUCK
 - GHOST
 - GERM
 - DEATH
- ITEM
 - WEAPON
 - INSECT REPELANT
 - JOKE BOOK
 - BREADCRUMBS
 - PROTON PACK
 - DISINFECTANT
 - SWORD OF IMMORTALITY
 - HEALTH POTION
- INVENTORY (LINKED LIST?)
- PLAYER
- GAME

CLASS
VARIABLE
FUNCTION

GAME PLAY

PLAYER IS STUCK IN HOUSE WI 16 ROOMS
HAS INVENTORY OF UP TO 10 ITEMS
CERTAIN AMOUNT OF HEALTH (\ominus HEALTH = LOSE GAME)
MOVES TO DIFFERENT ROOMS
FIGHT MONSTERS
EACH ROOM HOLDS A "MONSTER" REPRESENTING DIFFERENT
PHOBIAS: FEAR OF SPIDERS, CLOWNS, DUCKS, GHOSTS, GERMS,
AND DEATH
EACH PHOBIA HAS A PARTICULAR WEAPON IT IS SUSCEPTIBLE
TO (OTHERS CAN BE USED BUT DO VERY LITTLE DAMAGE)

SPIDER - INSECT REPELANT

- ATTACKS WI VENOMOUS BITE

CLOWN - USE JOKE BOOK TO MAKE IT LAUGH

- MAKES YOU LAUGH TO EXHAUSTION

DUCK - BREADCRUMBS MAKE IT TOO FAT TO FIGHT

- PECKS YOU TO DEATH

GHOST - USE A PROTON PACK TO CAPTURE

- SCARES YOU TO DEATH

GERM - DISINFECTANT

- MAKES YOU SICK

WHEN A PHOBIA IS DEFEATED, THE USER RECEIVES A GEM
5 GEMS ARE USED TO CREATE THE SWORD OF IMMORTALITY
CANNOT FIGHT DEATH UNTIL YOU HAVE SWORD
ALSO DROPS A HEALTH POTION, WHICH RESTORES % HEALTH
EACH ROOM IS LOCKED \hookrightarrow RANDOM CHANCE
UNLOCKED BY MATCHING PHOBIA TO SCIENTIFIC NAME
GETTING IT WRONG CAUSES LOSS % HEALTH
~~ENTERING A ROOM MORE THAN ONCE CAUSES LOSS OF HEALTH~~
EACH ROOM HOLDS A WEAPON THAT IS NEEDED TO FIGHT A
PHOBIA IN ANOTHER ROOM
USER'S INVENTORY CAN ONLY HOLD 10 ITEMS
INCLUDES WEAPONS, GEMS, HEALTH POTIONS
ONCE AT MAX, MUST DROP ITEMS TO PICK UP ANOTHER
ONCE FIRST 5 PHOBIAS ARE DEFEATED, USER CAN FIGHT DEATH
DEFATING DEATH ALLOWS USER TO ESCAPE + LIVE FOREVER
FIGHTS B/W USER + PHOBIA
TAKE TURNS ATTACKING
GENERATE RANDOM % TO INDICATE IF SUCCESSFUL
IF SUCCESSFUL, LOSE % HEALTH
CONTINUE UNTIL USER / PHOBIA LOSES ALL HEALTH
USER CAN CHOOSE TO QUIT FIGHT
PHOBIA REMAINS % HEALTH
USER CAN DRINK HEALTH POTION
ONCE PHOBIA DIES, ROOM IS EXORCIZED OF FEAR
USER LOSES HEALTH ONCE THEY'VE BEEN TO EACH ROOM TWICE
AND THEY ENTER A ROOM ANOTHER TIME

CLASS ROOM

* ABSTRACT BASE CLASS

VARIABLES

BOOL LOCKED
 BOOL DEFEATED
 PHOBIA * OBJECT
 STRING NAME
 INT ENTERED COUNTER
 WEAPON * OBJECT
 BOOL WEAPON PICKED UP

POINTERS: LEFT, RIGHT, UP, DOWN

FUNCTIONS

CONSTRUCTOR

P: STRING NAME, PHOBIA * OBJECT, WEAPON * OBJECT
 R: N/A

INITIALIZE VARS

SET BOOL LOCKED = TRUE; DEFATED = FALSE;
 WEAPON PICKED UP = FALSE

COUNTER = 0

DESTRUCTOR

P: N/A

R: N/A

DELETES ALLOCATED STORAGE

UNLOCK DOOR

P: NONE

R: BOOL - UNLOCKED?

IF LOCKED

MENU OF PHOBIAS

IF CORRECT

LOCKED = FALSE

ELSE

ALL FUNCTIONS

UNLOCK DOOR → ROOM

MATCH PHOBIA → ROOM

LOSE HEALTH → PLAYER + PHOBIA

GAIN HEALTH → PLAYER + PHOBIA

DROP ITEM → INVENTORY

PICK UP ITEM → INVENTORY

FIGHT → GAME

ATTACK → PLAYER + PHOBIA

DEFATED PHOBIA → PHOBIA

TAKE HEALTH POTION → PLAYER / INVENTORY

LOSE GAME → GAME

CHANGE ROOMS → PLAYER / ROOM / GAME

VIEW INVENTORY → INVENTORY

GET + SET → ALL

GENERATE RANDOM % → GAME

DISPLAY HEALTH → PLAYER

EXPLORE → ROOM

START → GAME

CS 142 • FINAL PROJECT • DESIGN

6/7/17

menu

PHOBIAS

SPIDERS

DUCKS

GHOSTS

GERMS

CLOWNS

DEATH

INVENTORY

VIEW ITEMS * CREATE SWORD

DROP ITEM

CHOOSE ITEM

ITEMS

NUMBER

LIST ITEMS

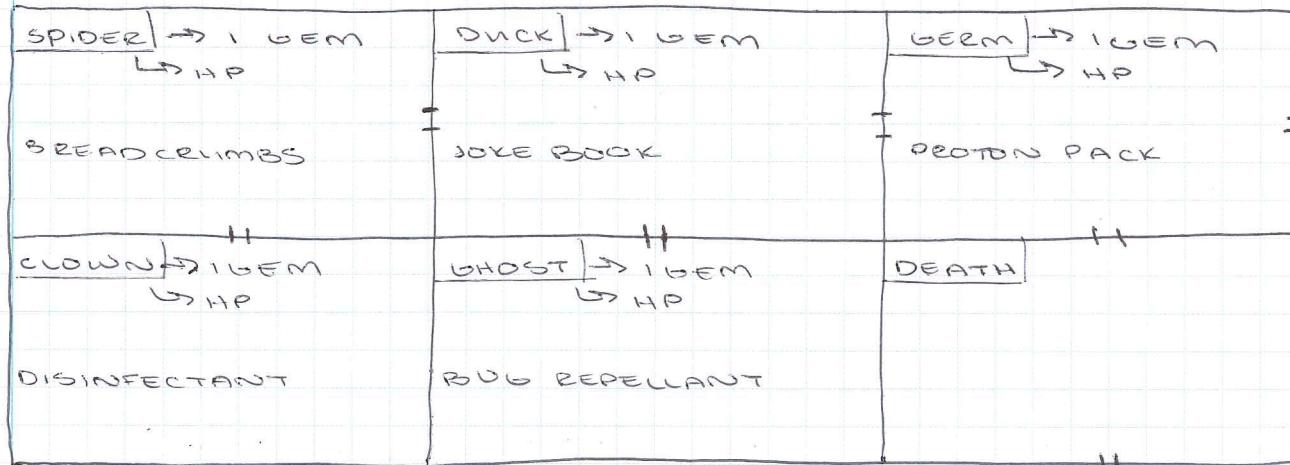
INCLUDE DESCRIPTIONS

FIGHT

ATTACK

DRINK HEALTH POTION

QUIT

rooms

PTRS TO ADJOINING ROOMS

EXIT

BOOL LOCKED

PTR TO PHOBIA

PTR TO ITEM (WHEN PICKED UP, SET TO NULL)

BOOL DEFEATED

STRING NAME

INT ENTERCOUNTER

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 CLASS ROOM (BASE CLASS)

9/11/17

VARIABLES

ROOM * RIGHT, * LEFT, * UP, * DOWN
 STRING NAME
 PHOBIA * BOSS
 ITEM * WEAPON
 BOOL LOCKED
 BOOL DEFEATED
 COUNTER = 0
 INPUT VALIDATION * USER INPUT
 MENU * ~~PHOBIA~~ ROOM MENU

FUNCTIONS

CONSTRUCTOR

P: ROOM PTRS (DEFAULT NULL), NAME, BOSS, WEAPON
 CREATE PHOBIA, ITEM, INPUT VALIDATION, MENU, WEAPON
 LOCKED = TRUE
 DEFEATED = FALSE

INITIALIZE VARIABLES

UNLOCK → PURE VIRTUAL (EACH ROOM HAS A DIFF ANSWER)

P: NONE

R: BOOL SUCCESS

PRINT DESCRIPTION

MENU → PHOBIA MENU

INT CHOICE = USERINPUT → VALIDATE INPUT AND RANGE (1, 6)

IF CHOICE IS CORRECT

LOCKED = FALSE

(ENTER ROOM)

INCREMENT COUNTER

RETURN LOCKED

EXPLORE → PURE VIRTUAL

P: NONE

R: VOID

PRINT NAME OF ROOM, PHOBIA, IF DEFEATED, IF WEAPON IS IN
 ROOM, DOORS

PICK UP ITEM → PURE VIRTUAL

P: NONE

R: PTR TO ITEM

IF ITEM = NULL

PRINT ERROR

ELSE

STORE TEMP PTR

ITEM = NULL

RETURN TEMP

DEFEATED

P: NONE

R: VOID

PHOBIA = NULL

DEFEATED = TRUE

CHANGE ROOM → PURE VIRTUAL

P: NONE

R: ROOM PTR

PRINT AVAILABLE ROOMS

INT CHOICE = USERINPUT → VALIDATE INT + RANGE

GET & SET
 FUNCTIONS

ENTER ROOM

P: NONE

R: BOOL BOOL INT COUNTER

INCREMENT COUNTER

RETURN COUNTER

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PHOBIA CLASS (BASE)

6/11/17

VARIABLES

STRING NAME

INT HEALTH

BOOL DEFEATED ITEM * GEM

BOOL HAS GEM ITEM * HP

~~BOOL HAS HEALTHPOTION~~~~DOUBLE~~~~NOT~~ STRENGTH

ITEM * PLAYERWEAPON

FUNCTIONS

CONSTRUCTOR

P: NAME CREATE WEAPON,
INITIALIZE VARIABLES GEM,
DEFEATED = FALSE

~~HAS GEM / HP = TRUE~~

GET + SET FUNCTIONS

DEFEATED

P: NONE

R: NONE BOOL DROPPEDHP

~~HAS GEM = FALSE~~ PRINT MSG ABOUT GETTING GEM

DEFEATED = TRUE

INT DROPHP = RAND(1) % 1

IF DROPHP = 1

RETURN TRUE PRINT MSG ABOUT GETTING HP

ELSE

RETURN FALSE

ATTACK → PURE VIRTUAL

P: NONE

DOUBLE

R: INT ATTACKSTRENGTH

PRINT MESSAGE (E.G. THE GHOST SHOUTS BOO!)

INT CHANCEHIT = RAND(1) % 100

IF CHANCE HIT < STRENGTH

PRINT MESSAGE (E.G. YOU JUMP IN FEAR!)

RETURN RAND(0, 1) + STRENGTH

ELSE

PRINT MESSAGE (E.G. YOU AREN'T SCARED AT ALL)

RETURN 0

DEFENSE → PURE VIRTUAL

P: DOUBLE

R: INT ATTACKSTRENGTH

R: BOOL DEFEATED

HEALTH * ATTACKSTRENGTH = DAMAGE

HEALTH - DAMAGE

IF (HEALTH ≤ 0)

DEFEATED = TRUE

RETURN DEFEATED

CHECK WEAPON

P: ITEM * WEAPON

R: DOUBLE STRENGTH

IF WEAPON = PLAYERWEAPON

RETURN 100

ELSE

PRINT MSG ABOUT NOT BEING EFFECTIVE

RETURN 25

* EACH PHOBIA HAS ARRAY w/ MESSAGES TO PRINT WHEN

ATTACKING / DEFENDING

* DEATH CHECKS IF USER HAS SWOON BEFORE FIGHTING

IF ATTACK > 0, PRINT MESSAGE
(E.G. DUCK EATS
A FEW BREAD
CRUMBS)

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CLASS INVENTORY (LINKED LIST)

STRUCT ITEMITEMNODE

ITEM * OBJECT
ITEM * NEXT
ITEM * PREVIOUS

CONSTRUCTOR

VARIABLES

ITEM * FRONT HEAD INPUTVALIDATION * USERINPUT
FUNCTIONS INT SIZE = 0

CONSTRUCTOR
HEAD = NULL

DESTRUCTOR
DELETE ALL ITEMS IN LIST
HEAD = NULL

ADD
P: ITEM POINTER
R: VOID
IF EMPTY
 HEAD = NEW ITEMNODE (ITEM)
ELSE
 ITEMNODE * NODEPTR = HEAD
 WHILE (NODEPTR → NEXT != NULL)
 NODEPTR = NODEPTR → NEXT
 NODEPTR → NEXT = NEW ITEMNODE (ITEM)
REMOVE
P: NONE IF EMPTY
R: VOID PRINT MESSAGE
 RETURN NULL
COUNTER = 1 DISPLAY LIST
WHILE (NODEPTR → NEXT != NULL)
 PRINT COUNTER
 PRINT ITEM → NAME
INCREMENT COUNTER NODEPTR = NODEPTR → NEXT
PROMPT USER FOR ITEM TO DROP (ADD WARNING)
INT CHOICE = USERINPUT → VALIDATE INT AND RANGE (1, COUNTER)
WHILE COUNTER < CHOICE
 NODEPTR = NODEPTR → NEXT
 INCREMENT COUNTER
 PREVNODEPTR = NODEPTR
IF (NODEPTR)
 PREVNODEPTR → NEXT = NODEPTR → NEXT
 DELETE NODE PTR
 PRINT MESSAGE
RETURN NODEPTR

DISPLAY LIST
P: NONE
R: VOID
ITEMNODE * NODEPTR = HEAD
WHILE (NODEPTR) COUNTER = 1
 PRINT NODEPTR → NAME
 NODEPTR = NODEPTR → NEXT
 PRINT COUNTER
INCREMENT COUNTER
GET QUANTITY

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10/11/17

CLASS ITEMVARIABLES

STRUCT ITEM

STRING NAME

INT STRENGTH

ARRAY [] MESSAGES

GEM = 0

HEALTH = RAND() % 75

PROTON PACK

BREADCRUMBS

TOKE BOOK

DISINFECTANT

INSECT REPELLANT

SWORD OF IMMORTALITY

CLASS PLAYERVARIABLE

STRING NAME

CONSTANT MAXBAGSIZE = 10

INT HEALTH, MAXHEALTH

INVENTORY * BAG

ITEM * WEAPON

INPUT VALIDATION * USERINPUT

ROOM * LOCATION

FUNCTIONS

CONSTRUCTOR

P: NAME

R: N/A

CREATE INVENTORY, INPUTVALIDATION

ROOM = NULL

WEAPON = NULL

HEALTH = 75

INITIALIZE NAME

DESTRUCTOR

DELETE ALLOCATED MEMORY

TAKE HP

P: ~~NAME~~ DOUBLE HP, NONE

R: VOID

PRINT MESSAGE

ITEM * HP =
INVENTORY → REMOVE

IF HP > NAME ! = HP

PRINT ERROR

HEALTHGAINED = HEALTH * (HP / STRENGTH / 100)

HEALTH += HEALTHGAINED

IF (HEALTH ≥ MAXHEALTH)

HEALTH = MAXHEALTH

PRINT MESSAGE

ELSE

PRINT HEALTH

GET/SET FUNCTIONS

PICK UP ITEM

P: ITEM * OBJ

R: VOID

IF INVENTORY → SIZE ≥ MAXBAGSIZE

PRINT MESSAGE

ELSE

INVENTORY → ADD(OBJ)

PICK WEAPON

P: NONE

R: VOID

IF INVENTORY → SIZE ≤ 0

PRINT MESSAGE

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6/11/17

DROP ITEM

P: NONE

R: VOID

ITEM * TEMP = INVENTORY → REMOVE

DELETE TEMP

CHANGE ROOM

P: NONE

R: ROOM *

ROOM → CHANGE ROOM

RETURN ROOM

FIGHT

P: NONE

R: DOUBLE ATTACKSTRENGTH ↳ CURRENT WEAPON OR
CHANGE WEAPON

PRINT MESSAGE

INT CHANCEHIT = RAND () % 100

IF CHANCEHIT < WEAPON . STRENGTH

PRINT MESSAGE

RETURN RAND % () + WEAPON . STRENGTH

ELSE

PRINT MESSAGE

RETURN 0

DEFENSE

P: INT ATTACKSTRENGTH IF ATTACK > 0

R: BOOL DIED PRINT MESSAGE

HEALTH * (ATTACKSTRENGTH / 100) = DAMAGE

HEALTH - DAMAGE

IF (HEALTH ≤ 0)

RETURN TRUE

ELSE

RETURN FALSE

LOSE HEALTH

P: INT DAMAGE

R: BOOL DIED

HEALTH - DAMAGE

IF (HEALTH ≤ 0)

RETURN TRUE

ELSE

RETURN FALSE

VIEW INVENTORY

CREATE SWORD

P: NONE

R: VOID

IF

CLASS GAME

VARIABLES

PLAYER * USER

ITEM * WEAPON

ROOM * LOCATION

PHOBIA * CPU

MENU * GAMEMENU

INPUTVALIDATION * USERINPUT

~~BOOL ENTEREDROOMSFORCE~~ INT COUNTER roomENTERED~~VECTOR < ROOM * > ROOMS~~

VECTOR < PHOBIA * > PHOBIAS

INT COUNTER

FUNCTIONS

CONSTRUCTOR

P: NONE

R: N/A

~~STARTGAME()~~

CREATE MENU, INPUTVALIDATION

WEAPON = NULL

ROOM = NULL

PHOBIA = NULL

BOOL = FALSE

CREATEROOMS() & PHOBIAS

~~CREATEPHOBIAS()~~

STARTGAME()

DESTRUCTOR

DELETE ALL ALLOCATED MEMORY

CREATE ROOMS AND PHOBIAS

P: NONE

R: VOID

ROOMS.PUSH-BACK(NEW PHOBIA (ROOMPTEs, NAME, PHOBIA,
WEAPON))

REPEAT FOR ALL ROOMS

STARTGAME

P: NONE

R: VOID

PRINT DESCRIPTION

GET NAME

CREATE PLAYER

PRINT ENTERING BUILDING

~~ROOMBUILDING~~ CHANGEROOM (mySOOHOBIA)

PHOBIA = ROOM → GET PHOBIA

GAME MENU → DISPLAY

CHANGEROOM

P: NONE ROOM *

R: VOID

ROOM = PLAYER → CHANGEROOM

IF ROOM \rightarrow LOCKEDBOOL UNLOCKED = ROOM \rightarrow UNLOCK~~UNLOCKED~~

IF LOCKED

IF COUNTER \geq 6
 PLAYER \rightarrow LOSE HEALTH (LoseHP 5)
 FIGHT
 . P: NONE
 . R: BOTH ALIVE \rightarrow DEFENSE (ATTACK) INT GAME STATUS
 INT ATTACK = USER \rightarrow FIGHT
 BOOL_DIED = PHOBIA \rightarrow DEFENSE (ATTACK)
 IF DIED
 PHOBIA \rightarrow DEFECTED = BOOL_DIED HP
 IF USER HP CREATE GEM + HP
 USER \rightarrow PICKUP ITEM (GEM)
 USE
 USER \rightarrow PICKUP ITEM (GEM) \rightarrow INCREMENT GEM COUNTER
 RETURN ①
 ELSE
 ATTACK = PHOBIA \rightarrow FIGHT
 DIED = USER \rightarrow DEFENSE (ATTACK)
 IF DIED
 RETURN ③
 RETURN ②
 LOOP
 P: NONE
 R: BOTH ALIVE \rightarrow INT GAME STATUS
 MENU \rightarrow GAME
 SWITCH
 1. USER \rightarrow GET HEALTH
 2. CHANGE ROOM
 3. USER \rightarrow WEAPONS REPORT
 4. EXPLORE ROOM \rightarrow EXPLORE
 5. FIGHT
 INT STATUS = FIGHT
 SWITCH
 1. PHOBIA WAS DEFEATED
 PHOBIA = NULL
 2. USER DIED
 LOST GAME()
 3. MENU \rightarrow FIGHT = CHOICE
 IF (CHOICE = 2)
 USER \rightarrow TAKE HP
 WHILE USER DOES NOT CHOOSE QUIT \rightarrow GameStart

1 = PHOBIA DEFECTED
 2 = BOTH ALIVE
 3 = USER DIED

① = USER WINS
 ② = USER LOSES
 ③ = KEEP PLAYING

LOOP WHILE ! 5 & ! 6
 MENU \rightarrow INVENTORY

WHILE CHOICE ! = 3

WHILE USER DOES NOT CHOOSE QUIT \rightarrow GameStart

CS 102 o FINAL PROJECT o GAME LOOP

6/11/17

DISPLAY GAME MENU

1. VIEW HEALTH

USER → GETHEALTH

2. MOVE

CHANGEROOM

3. INVENTORY

MENU → INVENTORY

4. EXPLORE

ROOM → EXPLORE

5. FIGHT

LOOP THROUGH FIGHT UNTIL QUIT

6. QUIT

CHECK USER'S HEALTH

IF < 0

LOSE GAME

CHECK DEATHHEALTH

IF < 0

WIN GAME