Cinema Project PsuedoCode

**START**

**GLOBAL** Username, F\_name, L\_name, E\_mail, Password, Movie\_title = **STRING**

**GLOBAL** Money, Price = **FLOAT**

**GLOBAL** Staff = **BOOL**

**GLOBAL** Room\_id, Seat\_total

**GLOBAL** User\_movies, Booked\_seats, Room\_seats\_1, Room\_seats\_2, Room\_seats\_3 = **1D STRING ARRAY**

**GLOBAL** All\_user\_seats = [Room\_seats\_1, Room\_seats\_2, Room\_seats\_3]

**GLOBAL** Folder\_list = [“Account”, “Room”, “Movie”]

**GLOBAL** Account\_list = GetFiles(0)

**GLOBAL** Room\_list = GetFiles(1)

**GLOBAL** Movie\_list = GetFiles(2)

**FUNCTION** Main()

**START FUNCTION**

Verified = False

Menu\_choice = Menu()

**IF** Menu\_choice == 1 **THEN**

Verified = CreateAccount()

**ELSE**

Verified = SignIn()

**END IF**

**WHILE** verified == True **THEN**

Account\_choice = AccountInfo()

**IF** Staff == False **THEN**

**IF** Account\_choice == 1 **THEN**

AccountBalance()

**ELSE IF** Account\_choice == 2 **THEN**

DepositMoney()

**ELSE IF** Account\_choice == 3 **THEN**

WithdrawMoney()

**ELSE IF** Account\_choice == 4 **THEN**

MovieOptions()

**ELSE IF** Account\_choice == 5 **THEN**

SignOut()

**END IF**

**ELSE IF** Staff == True **THEN**

**IF** Account\_choice == 1 **THEN**

StaffMovieOptions()

**ELSE IF** Account\_choice == 2 **THEN**

SignOut()

**END IF**

**END IF**

**END WHILE**

**END FUNCTION**

**FUNCTION** GetInput(Input\_message, Input\_type)

**START FUNCTION**

**WHILE** True **THEN**

**PRINT** Input\_message

**INPUT** = Raw\_input

**IF** Raw\_input **IS** Input\_type **THEN**

User\_input = Raw\_input

**BREAK**

**ELSE**

**PRINT** “Your input is not valid. Please try again.”

**END IF**

**END WHILE**

**RETURN** User\_input

**END FUNCTION**

**FUNCTION** GetChoice(Input\_message, Options\_list)

**START FUNCTION**

**WHILE** True **THEN**

**FOR** Index **FROM** 0 **TO** **LENGTH**(Options\_list) **DO**

**PRINT** “{Index} --> {Options\_list[Index]}”

Index += 1

**END FOR**

**PRINT** Input\_message

**INPUT** = Raw\_input

**IF** Raw\_input **IS** **INTEGAR THEN**

User\_input = Raw\_input

**BREAK**

**ELSE**

**PRINT** “Your input is not valid. Please try again.”

**END IF**

**END WHILE**

**RETURN** User\_input

**END FUNCTION**

**FUNCTION** GetFiles(Folder\_index)

**START FUNCTION**

File\_list = **1D STRING ARRAY**

**FOR EACH** File **IN** Folder\_list[Folder\_index] **DO**

Format\_file = File – “{Folder\_list[Folder\_index]}\\”

**APPEND** Format\_file **TO** File\_list

**END FOREACH**

**RETURN** File\_list

**END FUNCTION**

**FUNCTION** FormatList(List)

**START FUNCTION**

**FOR EACH** Item **IN** List **DO**

**IF** Item **IS** Null **THEN**

**REMOVE** Item **FROM** List

**END IF**

**END FOREACH**

**SET** List **TO** **STRING**

**RETURN** List

**END FUNCTION**

**FUNCTION** OpenFile(Folder\_index, File\_name)

**START FUNCTION**

**IF** Folder\_index == 0 **THEN**

**READ** “{Folder\_list[Folder\_index]}\\{File\_name}.txt” F\_name, L\_name, E\_mail, Password, Money, Staff, User\_movies, Room\_seats\_1, Room\_seats\_2, Room\_seats\_3

Username = File\_name

**ELSE IF** Folder\_index == 1 **THEN**

**READ** “{Folder\_list[Folder\_index]}\\{File\_name}.txt” Movie\_title, Booked\_seats, Seat\_total

Room\_id = File\_name

**ELSE**

**READ** “{Folder\_list[Folder\_index]}\\{File\_name}.txt” Movie\_title, Price, Room\_id

Movie\_title = File\_name

**END IF**

**END FUNCTION**

**FUNCTION** SaveChanges(Credentials\_list, Folder\_index, File\_name)

**START FUNCTION**

**WRITE** “{Folder\_list[Folder\_index]}\\{File\_name}.txt” Credentials\_list

**END FUNCTION**

**FUNCTION** Menu()

**START FUNCTION**

Menu\_options = [“Create Account”, “Sign-In”]

Menu\_choice = GetChoice(“What would you like to do?”, Menu\_options)

**RETURN** Menu\_choice

**END FUNCTION**

**FUNCTION** CreatAccount()

**START FUNCTION**

Username\_valid = False

**WHILE** Username\_valid == False **THEN**

Username\_temp = GetInput(“Please enter a username”, **STRING**)

**FOR EACH** Account **IN** Account\_list **DO**

**IF** Account != Username\_temp **THEN**

Username = Username\_temp

Username\_valid = True

**ELSE**

**PRINT** “This username already exists”

**BREAK**

**END FOREACH**

**END WHILE**

F\_name = GetInput(“What is your first name?”)

L\_name = GetInput(“What is your last name?”)

**WHILE** True **THEN**

Expected\_chars = 0

E\_mail = GetInput(“Please enter your E-Mail”, **STRING**)

**FOR EACH CHAR IN** E\_mail **DO**

**IF CHAR** == “@” **OR** **CHAR** == “.” **THEN**

Expected\_chars += 1

**END IF**

**END FOREACH**

**IF** Expected\_chars < 2

**PRINT** “This E-Mail does not have a valid domain”

**ELSE**

**BREAK**

**END IF**

**END WHILE**

**WHILE** True **THEN**

Digits = 0

Special\_chars = 0

Capital\_chars = 0

**PRINT** (“Password must contain:”)

**PRINT**(“– 12 Characters”)

**PRINT**(“– At least 2 special characters (e.g. @, %, \*, <)”)

**PRINT**(“– At least 2 numbers”)

**PRINT**(“– A capital letter”)

Password = GetInput(“Please enter a new password”, **STRING**)

**FOR EACH CHAR** **IN** Password **DO**

**IF** **CHAR** == **INTEGER**

Digits += 1

**ELSE IF CHAR** != **ALPHANUMERIC**

Special\_chars += 1

**ELSE IF CHAR** == **UPPERCASE**

Capital\_chars += 1

**END IF**

**END FOREACH**

**IF** Special\_chars > 1 **AND** Digits > 1 **AND** Capital\_chars > 0 **AND LENGTH**(Password) > 11 **THEN**

**BREAK**

**ELSE**

**PRINT** “Password is invalid, please try again”

**END IF**

**END WHILE**

Money = 0.00

Staff = False

User\_movies = []

All\_user\_seats = [ [], [], [] ]

Account\_credentials = [F\_name, L\_name, E\_mail, Password, Staff, User\_movies, All\_user\_seats[0], All\_user\_seats[1], All\_user\_seats[2]]

SaveChanges(Account\_credentials, 0, Username)

Verified = True

**RETURN** Verified

**END FUNCTION**

**FUNCTION** SignIn()

**START FUNCTION**

Username\_valid = False

**WHILE** Username\_valid == False **THEN**

Username\_temp = GetInput(“Please type in your username”, **STRING**)

**FOR EACH** Account **IN** Account\_list **DO**

**IF** Username\_temp == Account **THEN**

Username\_valid = True

Username = Username\_temp

OpenFile(0, Username)

**BREAK**

**END IF**

**END FOREACH**

**IF** Username\_valid == False

**PRINT** “The account could not be found, please try again”

**END IF**

**END WHILE**

**WHILE** True **THEN**

Password\_temp = GetInput(“Please type in your password”)

**IF** Password\_temp == Password **THEN**

**BREAK**

**ELSE**

**PRINT**(“This password is incorrect, please try again”)

**END IF**

**END WHILE**

Verified = True

**RETURN** Verified

**END FUNCTION**

**FUNCTION** SignOut()

**START FUNCTION**

Sign\_out\_options = [“Yes”, “No”]

Sign\_out\_choice = GetChoice(“Are you sure you want to exit?”, Sign\_out\_options)

**IF** Sign\_out\_choice == 1 **THEN**

Sign\_out\_confirm = True

Account\_credentials = [F\_name, L\_name, E\_mail, Password, Staff, User\_movies, All\_user\_seats[0], All\_user\_seats[1], All\_user\_seats[2]]

SaveChanges(Account\_credentials, 0, Username)

**END IF**

**RETURN** Sign\_out\_confirm

**END FUNCTION**

**FUNCTION** AccountInfo()

**START FUNCTION**

**PRINT** “Welcome, {F\_name}”

**IF** Staff == False **THEN**

Account\_options = [“View Balance”, “Deposit Money”, “Withdraw Money”, “Movies”, “Sign-Out”]

**ELSE**

Account\_options = [“Movies”, “Sign-Out”]

**END IF**

Account\_choice = GetChoice(“What would you like to do”, Account\_options)

**RETURN** Account\_choice

**END FUNCTION**

**FUNCTION** AccountBalance()

**START FUNCTION**

Finish\_section = False

**WHILE** Finish\_section == False

**PRINT** “Your account balance is {Money}”

Finish\_section = Finish()

**END WHILE**

**END FUNCTION**

**FUNCTION** DepositMoney()

**START FUNCTION**

Finish\_section = False

**WHILE** Finish\_section == False

Money\_add = GetInput(“How much money would you like to add?”, **FLOAT**)

Money += Money\_add

Finish\_section = Finish()

**END WHILE**

**END FUNCTION**

**FUNCTION** WithdrawMoney()

**START FUNCTION**

Finish\_section = False

**WHILE** Finish\_section == False

**WHILE** True **THEN**

Money\_remove = GetInput(“How much money would you like to remove?”)

**IF** Money\_remove > Money **THEN**

**PRINT** “You cannot withdraw this amount”

**ELSE**

Money -= Money\_remove

**BREAK**

**END IF**

**END WHILE**

Finish\_section = Finish()

**END WHILE**

**END FUNCTION**

**FUNCTION** MovieOptions()

**START FUNCTION**

Exit = False

**WHILE** Exit == False **THEN**

Movie\_options = [“View Bookings”, “Make New Booking”, “Remove Booking”, “Back to Home”]

**IF** Movie\_options == 1 **THEN**

ViewBookings()

**ELSE IF** Movie\_options == 2 **THEN**

AddBookings()

**ELSE IF** Movie\_options == 3 **THEN**

RemoveBookings()

**ELSE IF** Movie\_options == 4 **THEN**

Exit = True

**END IF**

**END WHILE**

**END FUNCTION**

**FUNCTION** GetRoomID(Movie\_choice)

**START FUNCTION**

Movie\_title = Movie\_List[Movie\_choice - 1]

OpenFile(2, Movie\_title)

OpenFile(1, Room\_id)

**END FUNCTION**

**FUNCTION** ViewBookings()

**START FUNCTION**

View\_choice = GetChoice(“What booking would you like to view?, Movie\_list)

GetRoomID(View\_choice)

RoomAscii()

**END FUNCTION**

**FUNCTION** AddBookings()

**START FUNCTION**

Finish\_section = False

**WHILE** Finish\_section == False

Book\_seat\_confirm = True

Movie\_exist = False

Movie\_add\_choice = GetChoice(“What booking would you like to add?”, Movie\_list)

GetRoomID(Movie\_add\_choice)

**FOR EACH** Film **IN** User\_movies **DO**

**IF** Movie\_tile == Film **THEN**

Movie\_exist = True

**PRINT** “You have already booked this movie, {Movie\_title}, before…”

Book\_again\_options = [“Yes”, “No”]

Book\_again\_choice = GetChoice(“Would you like to book more seats?”, Book\_again\_options)

**IF** Book\_again\_choice == 2 **THEN**

Book\_seat\_confirm = False

**END IF**

**BREAK**

**ELSE**

Movie\_exist = False

**END IF**

**IF** Movie\_exist == False **THEN**

**APPEND** Movie\_title **TO** User\_movies

**END IF**

**IF** Book\_seat\_confirm == True **THEN**

OpenFile(1, Room\_id)

**WHILE** True **THEN**

RoomAscii()

Seat\_amount = GetInput(“How many seats would you like to add?”, **INTEGER**)

**IF** Seat\_amount > 100 – Seat\_total **THEN**

**PRINT** “That is too many seats”

**ELSE**

Total\_cost = Seat\_amount \* Price

**IF** Total\_cost > Money **THEN**

**PRINT** “You do not have enough money for this many bookings”

**ELSE**

Money -= Total\_cost

**BREAK**

**END IF**

**END IF**

Seats\_queue = MakeSeatQueue(Seat\_amount)

AddSeats(SeatsQueue)

**END WHILE**

Finish\_section = Finish()

**END WHILE**

**END FUNCTION**

**FUNCTION** RemoveBookings()

**START FUNCTION**

Finish\_section = False

**WHILE** Finish\_section == False

Remove\_seat = True

Removal\_choice = GetChoice(“What booking would you like to remove?”, Movie\_list)

GetRoomID(Removal\_choice)

**FOR EACH** Film **IN** User\_movies **DO**

**IF** Movie\_title == Film **THEN**

Removal\_options = [“Yes”, “No”]

Removal\_choice = GetChoice(“Are you sure you would like to remove bookings for {Movie\_title}”, Removal\_options)

**IF** Remove\_choice == 2 **THEN**

Remove\_seat = False

**END IF**

**BREAK**

**END IF**

**END FOREACH**

**IF** Remove\_seat == True **THEN**

Remove\_scale\_options = [“Whole Movie”, “Specific Seats”]

Remove\_scale\_choice = GetChoice(“What would you like to remove”, Remove\_scale\_options)

**IF** Remove\_scale\_choice == 1 **THEN**

RemoveSeats(All\_user\_seats[Room\_id - 1])

**REMOVE** Movie\_title **FROM** User\_movies

**ELSE**

OpenFile(1, Room\_id)

**WHILE** True **THEN**

RoomAscii()

Seat\_amount = GetInput(“How many seats would you like to remove?”, **INTEGER**)

**IF** Seat\_amount > **LENGTH**(All\_user\_seats[Room\_id - 1]) **THEN**

**PRINT** “That is too many seats”

**ELSE**

Seat\_total -= Seat\_amount

Total\_cost = Seat\_amount \* Price

Money += Total\_cost

**BREAK**

**END IF**

**END WHILE**

Seats\_queue = MakeSeatQueue(Seat\_amount)

RemoveSeats(Seats\_queue)

**END IF**

**END IF**

Finish\_section = Finish()

**END WHILE**

**END FUNCTION**

**FUNCTION** MakeSeatRow(List\_of\_seats, Start\_index, End\_index)

**START FUNCTION**

Line = **STRING 1D ARRAY**

Y = 0

**FOR** X **IN** **RANGE**(Start\_index, End\_index)

Line[Y] = List\_of\_seats[X]

Y += 1

**END FOR**

**RETURN** Line

**END FUNCTION**

**FUNCTION** RoomAscii()

**START FUNCTION**

Seats = **STRING 1D ARRAY**

Ascii\_seats = **STRING** **1D ARRAY**

**FOR EACH** Letter **IN** Alphabet **DO**

**FOR** Y **IN** **RANGE**(1, 10)

Coordinate = “{X + Y}”

**APPEND** Coordinate **TO** Seats

**END FOR**

**END FOREACH**

**FOR** Y **IN RANGE**(0, **LENGTH**(Seats))

Ascii\_seat = “[ {Seats[y]} ]”

**APPEND** Ascii\_seat **TO** Ascii\_seats

**END FOR**

Lines = **STRING 2D ARRAY**

**FOR** X **IN** **RANGE**(0, **LENGTH**(Seats))

**IF** Booked\_seats **HAS** Seats[X] **AND** All\_user\_seats[Room\_id - 1] **HAS NOT** Seats[X] **THEN**

Ascii\_seats[X] = “[={Seats[X]}=]”

**ELSE IF** Booked\_seats **HAS NOT** Seats[X] **AND** All\_user\_seats[Room\_id - 1] **HAS** Seats[X] **THEN**

Ascii\_seats[X] = “[#{Seats[X]}#]”

**END IF**

**FOR** Value **IN RANGE**(0, 100), Value += 10 **DO**

Lines[Value / 10] = MakeSeatRow(Ascii\_seats, Value, Value+10)

**END FOR**

**END FOR**

**PRINT** “Your Bookings – ‘#’ ”

**PRINT** “Other Bookings – ‘=’ ”

**PRINT** “------------------------------------------------{Movie\_title}--------------------------------------------------”

**FOR EACH** Line **IN** Lines

**PRINT** Line

**END FOREACH**

**END FUNCTION**

**FUNCTION** MakeSeatQueue(Seat\_amount)

**START FUNCTION**

Seat\_queue = **STRING 1D ARRAY**

**FOR** Y **IN** **RANGE**(0, Seat\_amount)

**WHILE** True **THEN**

Seat\_coordinate = GetInput(“Please input the coordinate of the seat you would like”, **STRING**)

**REMOVE** “ “ **FROM** Seat\_coordinate

**REMOVE** “,” **FROM** Seat\_coordinate

**IF** Booked\_seats **HAS** Seat\_coordinate **THEN**

**PRINT** “This seat has already been booked.”

**ELSE IF** All\_user\_seats[Room\_id - 1] **HAS** Seat\_coordinate **OR** Seat\_queue **HAS** Seat\_coordinate **THEN**

**PRINT** “You have already booked this seat”

**ELSE IF** All\_user\_seats[Room\_id - 1] **HAS NOT** Seat\_coordinate **AND** Seat\_queue **HAS NOT** Seat\_coordinate **THEN**

**APPEND** Seat\_Coordinate **TO** Seat\_queue

**BREAK**

**END IF**

**END WHILE**

**END FOR**

**RETURN** Seat\_queue

**END FUNCTION**

**FUNCTION** AddSeats(Seat\_queue)

**START FUNCTION**

**FOREACH** Seat **IN** Seat\_queue **DO**

**APPEND** Seat **TO** All\_user\_seats[Room\_id - 1]

**APPEND** Seat **TO** Booked\_seats

**END FOREACH**

Room\_credentials = [Movie\_title, FormatList(Booked\_seats), Room\_id]

SaveChanges(Room\_credentials, 1, Room\_id)

**END FUNCTION**

**FUNCTION** RemoveSeats(Seat\_queue)

**START FUNCTION**

**FOREACH** Seat **IN** Seat\_queue **DO**

**REMOVE** Seat **TO** All\_user\_seats[Room\_id - 1]

**REMOVE** Seat **TO** Booked\_seats

**END FOREACH**

Room\_credentials = [Movie\_title, FormatList(Booked\_seats), Room\_id]

SaveChanges(Room\_credentials, 1, Room\_id)

**END FUNCTION**

**FUNCTION** StaffMovieOptions()

**START FUNCTION**

Exit = False

**WHILE** Exit == False **THEN**

Staff\_movie\_options = [“Add Movie”, “Remove Movie”, “Back to Home”]

Staff\_movie\_choice = GetChoice(“What would you like to do”, Staff\_movie\_options)

**IF** Staff\_movie\_choice == 1 **THEN**

AddMovie()

**ELSE IF** Staff\_movie\_choice == 2 **THEN**

RemoveMovie()

**ELSE IF** Staff\_movie\_choice == 3 **THEN**

Exit = True

**END IF**

**END FUNCTION**

**FUNCTION** AddNewMovie()

**START FUNCTION**

Finish\_section = False

**WHILE** Finish\_section == False

Movie\_exist = True

Room\_taken = True

**WHILE** Movie\_exist == True **THEN**

Temp\_movie\_title = GetInput(“What is the name of the movie?”, **STRING**)

**FOR EACH** Movie **IN** Movie\_list **DO**

**IF** Movie != Temp\_movie\_title **THEN**

Movie\_exist = False

**ELSE**

Movie\_exist = True

**BREAK**

**END IF**

**END FOREACH**

**IF** Movie\_exist == True **THEN**

**PRINT** “This movie already exists”

**END IF**

**END WHILE**

Temp\_price = GetInput(“How much will the seat cost?”, **FLOAT**)

**WHILE** Room\_taken == True **THEN**

**WHILE** True **THEN**

Room\_temp = GetInput(“What room would you like?”, **INTEGER**)

**IF** Room\_temp > **LENGTH**(Room\_list) **OR** Room\_temp <= 0 **THEN**

**PRINT** “This room does not exist”

**ELSE**

**BREAK**

**END IF**

**END WHILE**

**FOR EACH** Movie **IN** Movie\_list **DO**

OpenFile(2, Movie)

**IF** Room\_temp == Room\_id **THEN**

**PRINT** “This room is already taken”

Room\_taken = True

**BREAK**

**ELSE**

Room\_taken = False

**END IF**

**END FOREACH**

**END WHILE**

Room\_id = Room\_temp

Movie\_title = Temp\_movie\_title

Price =Temp\_price

Temp\_booked\_seats = []

Temp\_seat\_total = 0

Room\_info = [Movie\_title, FormatList(Temp\_booked\_seats), Temp\_seat\_total]

Movie\_info = [Movie\_title, Price, Room\_id]

SaveChanges(Movie\_info, 2, Movie\_title)

SaveChanges(Room\_info, 1, Room\_id)

Finish\_section = Finish()

**END WHILE**

**END FUNCTION**

**FUNCTION** RemoveExistingMovie()

**START FUNCTION**

Finish\_section = False

**WHILE** Finish\_section == False

Remove\_choice = GetChoice(“What would you like to remove”, Movie\_list)

Room\_id = Remove\_choice

**FOR** Y **IN** **RANGE**(**LENGTH**(Movie\_list)) **DO**

**IF** Remove\_choice – 1 == Y **THEN**

**REMOVE** “{Folder\_list[2]}\\{Movie\_list[y]}.txt”

OpenFile(1, Room\_id)

Movie\_title = Null

**FOR EACH** Account **IN** Account\_list **DO**

OpenFile(0, Account)

Booked\_seats = Null

All\_user\_seats[Room\_id -1] = Null

Account\_credentials = [F\_name, L\_name, E\_mail, Password, Money, Staff, User\_movies, Room\_seats\_1, Room\_seats\_2, Room\_seats\_3]

SaveChanges(Account\_credentials, 0, Account)

**END FOREACH**

Seat\_total = 0

**PRINT** “The movie {Movie\_title} has been removed”

**BREAK**

**END IF**

**END FOR**

Room\_info = [Movie\_title, FormatList(Booked\_seats), Seat\_total]

SaveChanges(Room\_info, 1, Room\_id)

Finish\_section = Finish()

**END WHILE**

**END FUNCTION**

**FUNCTION** Finish()

**START FUNCTION**

Finish\_boolean = True

Finish\_options = [“Yes”, “No”]

Finish\_choice = GetChoice (“Are you finished with this section”, Finish\_options)

**IF** Finish\_choice == 1 **THEN**

Finish\_boolean = False

**END IF**

**RETURN** Finish\_boolean

**END FUNCTION**

**END**