**LABTASK 4**

**NAME: SARIM AMIR**

**SID: 63686**

def kingmoves(source\_X, source\_Y, dest\_X, dest\_Y):

print("King Moves:")

print("==========")

print(max(abs(source\_X-dest\_X), abs(source\_Y-dest\_Y)))

while((source\_X !=dest\_X) or (source\_Y != dest\_Y)):

if(source\_X < dest\_X):

print('1 sq forward ',end="")

source\_X += 1

if(source\_X > dest\_X):

print('1 sq backward ',end="")

source\_X -= 1

if(source\_Y > dest\_Y):

print('1 sq left ')

source\_Y -= 1

if(source\_Y < dest\_Y):

print('1 sq right ',end="")

source\_Y += 1

def rookmoves(source\_X, source\_Y, dest\_X, dest\_Y):

print("\n")

print("\nRook Moves:")

print("==========")

print(max(abs(source\_X-dest\_X), abs(source\_Y-dest\_Y)))

while((source\_X !=dest\_X) or (source\_Y != dest\_Y)):

if(source\_X < dest\_X):

print('1 sq forward ',end="")

source\_X += 1

if(source\_X > dest\_X):

print('1 sq backward ',end="")

source\_X -= 1

if(source\_Y > dest\_Y):

print('1 sq left ')

source\_Y -= 1

if(source\_Y < dest\_Y):

print('1 sq right ',end="")

source\_Y += 1

def pawnmoves(source\_X, source\_Y, dest\_X, dest\_Y):

print("\n")

print("\nPawn Moves:")

print("==========")

print(max(abs(source\_X-dest\_X), abs(source\_Y-dest\_Y)))

while((source\_X !=dest\_X) or (source\_Y != dest\_Y)):

if(source\_X < dest\_X):

print('2 sq forward and once again 1 sq forward ',end="")

source\_X += 1

if(source\_X > dest\_X):

print('Pawn cannot move backward ',end="")

#source\_X -= 1

break

if(source\_Y > dest\_Y):

print('Pawn cannot move left ')

#source\_Y -= 1

break

if(source\_Y < dest\_Y):

print('Pawn cannot move right ',end="")

#source\_Y += 1

break

def queenmoves(source\_X, source\_Y, dest\_X, dest\_Y):

print("\n")

print("\nQueen Moves:")

print("==========")

print(max(abs(source\_X-dest\_X), abs(source\_Y-dest\_Y)))

while((source\_X !=dest\_X) or (source\_Y != dest\_Y)):

if(source\_X < dest\_X):

print('Move forward or move forward diagnally ',end="")

source\_X += 1

if(source\_X > dest\_X):

print('Move backward or move backward diagnally ',end="")

source\_X -= 1

if(source\_Y > dest\_Y):

print('Move left ')

source\_Y -= 1

if(source\_Y < dest\_Y):

print('Move right ',end="")

source\_Y += 1

def knightmoves(source\_X, source\_Y, dest\_X, dest\_Y):

print("\n")

print("\nKnight Moves:")

print("==========")

print(max(abs(source\_X-dest\_X), abs(source\_Y-dest\_Y)))

while((source\_X !=dest\_X) or (source\_Y != dest\_Y)):

if(source\_X < dest\_X):

print('Move 2sq forward and 90 degree turn ',end="")

source\_X += 1

if(source\_X > dest\_X):

print('Move 2sq backward and 90 degree turn ',end="")

source\_X -= 1

if(source\_Y > dest\_Y):

print('Move 2sq left and 90 degree turn ')

source\_Y -= 1

if(source\_Y < dest\_Y):

print('Move 2sq right and 90 degree turn ',end="")

source\_Y += 1

def bishopmoves(source\_X, source\_Y, dest\_X, dest\_Y):

print("\n")

print("\nBishop Moves:")

print("==========")

print(max(abs(source\_X-dest\_X), abs(source\_Y-dest\_Y)))

while((source\_X !=dest\_X) or (source\_Y != dest\_Y)):

if(source\_X < dest\_X):

print('Move forward diagnally ',end="")

source\_X += 1

if(source\_X > dest\_X):

print('Move backward diagnally ',end="")

source\_X -= 1

if(source\_Y > dest\_Y):

print('Bishop cannot move left ')

#source\_Y -= 1

break

if(source\_Y < dest\_Y):

print('Bishop cannot move right ',end="")

#source\_Y += 1

break

if \_\_name\_\_ == '\_\_main\_\_':

SourceX = int(input("Enter SourceX:"))

SourceY = int(input("Enter SourceY:"))

DestX = int(input("Enter DestY:"))

DestY = int(input("Enter DestY:"))

kingmoves(SourceX, SourceY, DestX, DestY)

rookmoves(SourceX, SourceY, DestX, DestY)

pawnmoves(SourceX, SourceY, DestX, DestY)

queenmoves(SourceX, SourceY, DestX, DestY)

knightmoves(SourceX, SourceY, DestX, DestY)

bishopmoves(SourceX, SourceY, DestX, DestY)

**OUTPUT:**





