(Affiliated to Osmania University)

Hyderabad - 500 031.

D	E	P	A	F	T	N	1	E	N	T	0	F

CSE

NAME OF THE LABORATORY : DAR

LAB PROGRAMS-9:

Longest increasing subsequence:

#include <stdio.h>

#include < stalib. h>

int maxe (int a, int b)

{ return (a>b)? a:b;}

int main ()

もでしかからうう

printf("Enter the no. of integers:");

scanf("%d", &n);

int a[n], t[n].

for(i=0; i<n; i++) { t(i]=1;}

for(i=0; ixn; i++) { scanf ("%d", &a[i]);}

for(i=1; kn; i++)

{ for (j=0; j<=i-1;j++)

f ib(a[j] ca[i])

{ t[i] = max (t[i], t[i]+i);}

m=0; for(i=0;ikn;i++){ ib (mxt[i]){m=t[i];}} (Autonomous)
(Affiliated to Osmania University)

L	400	ahad		EAA	031.	
Пγ	uei	ยบนน	•	200	UJI.	

									•	
D	E	P	۱R	T	M	EI	TV	. 01	F	

NAME OF THE LABORATORY : DAA

: CSE

Name K'S I SIVANI Roll No. -052 Page No. 113

printf("Length of the longest increasing subsequence: %d

Z

OIP;

Enter the no. of & integers: 7

3

4

-1

6

2

Length of the longest increasing subsequence: 4.

(AUTONOMOUS)
(Affiliated to Osmania University)
Hyderabad - 500 031.

D	EF	PA	R	TI	ИE	NT	0	F
				• •		• • •	_	

CSE

NAME OF THE LABORATORY : DAA

Name K.S.I.SIVANI

_____ Roll No. <u>- 052</u>

_ Page No. _

114

PRELAB QUESTIONS-10

Woute the control abstraction for Backtracking design strategy:

def backtracking (problem, solution):

ib is_complete(solution);

return solution.

candidates = generate_candidates (problem, solution) for candidate in candidates:

if is_valid (candidate):

solution add (candidate)

result = backtracking (problem, solution)

ig result is not None:

neturn resutt.
Solution remove (candidate).

geturn None.

(AUTONOMOUS)
(Affiliated to Osmania University)
Hyderabad - 500 031.

	Hyderabad - 500 031. DEPARTMENT OF : <u>CSE</u>
	NAME OF THE LABORATORY : DAA. Name K.S.T.SIVANI BOUND 052 Bage No. 115
3)	HOII NO. — 0.02 Fage No.
7	Noute the algorithm to place in queens on a
	Novite the algorithm to place 'n' queens on a NXN chess board.
	int solve Queens (int cd)
	{ if (col >= N)
3	netun 1
	for (int i = 0; ix N; i++)
	f ig(isSafe(i,col))
	\$ { board[i][col] = 1
	4(solveQueens(col+1))
	return 1;
	board[i][co] = 0°, jo j.
3)	What is chromatic number? Give an example:
7	The chromatic number is a concept in graph
	theory that represents the min no of colours neede
	theory that represents on a oranh such I had no
	to colour the vertices of a graph such that no
	a adjacent vertices have some colour.
	$\stackrel{\text{EX}}{=}$ A $\stackrel{\text{B}}{=}$ Chromatic no =2.

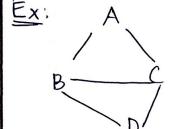
(Affiliated to Osmania University)
Hyderabad - 500 031.

DEPARTMENT	r OF : _ CS	E
NAME OF THI	ELABORATORY : DA	A
Name K'S I'SIVANI	POUND - 052	D M-

4) What is Hamiltonian cycle? Given an example.

A Hamiltonian cycle is a path that visits each vertex exactly once and ends at the starting

Vertex



A -> B. -> C-> D-) A.

PRELAB PROGRAMS-10

mplement N-queens block problem with back tracking.

#indude astdio.h>

define N 4
int board[N][N];
int is Safe (int row, int col)
fint i, j;
for (i=0; iccol; i++)
f is (board [row][i]) return 0; }

(Affiliated to Osmania University)
Hyderabad - 500 031.

DEPA	RTMENT	OF

CSE

NAME OF THE LABORATORY: DRA

Name K'S. J'SIVANI Roll No. -052

Page No. 117

for(i=row)j=col;i7=0&&j>=0;i--1j--) { il (board[i][j]) return 0;}

for (i=row, j=col; j=0 & & i < N; i++>j--)
{ it (boand[i][j]) return 0;}

return 1; }

int solveNqueens(int col)

f is (col>=N) return 1;

for (int i=0; i < N; i++)

f it (is Saje (i, col))

f boand[i][co] = 1;

if (solvedNQueens(cd+1)) relarin 1;

board[i][col]=0; }}

return 0; }

void print_board()

f for (int i=0) i < N; i++)

{ for (int j =0;j<N;j++)

{ printf("%c", board[i][j]?'Q':'-');}

VASAVI C

(AUTONOMOUS)
(Affiliated to Osmania University)

Hyderabad		500	031
riyudiabau	•	300	031.

\mathbf{r}	-	PΑ	-	-		-		-	-	-
	-	JA			ΝЛ	-	NI		7	
u		~~	п		IVI		ıv		.,	г

: CSE

NAME OF THE LABORATORY : DAA

Roll No. -052

Page No.

printf("\n"); } }. int main () { for (int i=0; kN; i++) { for (int j = 0; jk N; j++) { board[i][i] =0; }} 4 (solve NQueens (o)) 9 printf ("Solution: \n"); print_board(); 4 else { printf("No solution exists for the given boardsize(n");} return 0;

2) Implement Graph colowing with back tracking: #include xstdio.h> # define V 4. int graph [v][v] = {{0,1,13, {1,0,1,0}

利いいの13, 行いのいの子子:

Promotos (Hillithania

1:0 mobs (1)/1/16 15 1

Plan Joh Karang 2 1 d c h

I Family (AT 1 mily)

(* * * * 14 > 1 . n= 1 + 1 1 1 1)

11 = [noillane not]

Jy con [Not William)

(Christian Daries Ja ?

(- in A Alexania and althoughton in

, & mention (for this as in appropriately

VASAVI CO

(AUTONOMOUS)
(Affiliated to Osmania University)

HV	dera	had		500	03	1
111	uuit	Dau	•	300	U3	٠.

DEPARTM	
LIFEARIUM	

: CSE

NAME OF THE LABORATORY: DAA

 $Name K \cdot S \cdot T \cdot SIVANI$ Roll No. _-052-

Page No. _____ | | 9

int m=3; int colors[v];

Int is Safe (int \$1,v, int c)

{ for (int i=0; ix V; i++)

f ib (graph[v][i] & & colors (i] ==c) return 0;}

outwin 1; }

int graphColowingUtil(int v)

9 ib (v==V) neturn 1;

for (int c=1) c = m/c++)

9 4 (isSaje(v,c))

{ colors[v]=c?

if (graph Colowing Util (v+1)) return 1:

colors[v] =0; }?

setwin 0; 7.

void printColors()

printf ("Vertex/+ colour/n"):

for (int 1=0; 1/1/1++)

{ printf("%d\t %d\n", i, colowis[i]), }.

VASAVI COLLEGE

(AUTONOMOUS) (Affiliated to Osmania University) Hyderabad - 500 031.

DEPARTMENT OF

NAME OF THE LABORATORY : DAA

Name K'S.I. SIVANI

Roll No. -052

Page No.

int main () { for (int i = 0; i< /; i++) { colors[i] = 0; } ib (graph Colomoung Util·(0))
{ printf("Solution:\n");
print(olors(); ?

else

f printf("No solution exists for the given graph & number of colors. n);

return o; 7

OIP;

Solution:

Color Vertex