Pattern generation:

Problem 1:

#include<stdio.h>

int main()

{

int i,j,rows;

scanf("%d",&rows);

for(i=1; i<=rows; i++)

{

for(j=1; j<=i; j++)

{

printf("\*");

}

printf("\n");

}

for(i=1; i<=rows; i++)

{

for(j=1; j<i; j++)

{

printf(" ");

}

for(j=i; j<=rows; j++)

{

printf("\*");

}

Problem 2:

#include <stdio.h>

int main()

{

int i, j, rows;

int stars, spaces;

printf("Enter rows : ");

scanf("%d", &rows);

stars = 1;

spaces = rows - 1;

for(i=1; i<rows\*2; i++)

{

for(j=1; j<=spaces; j++)

printf(" ");

for(j=1; j<stars\*2; j++)

printf("\*");

printf("\n");

if(i<rows)

{

spaces--;

stars++;

}

else

{

spaces++;

stars--;

}

}

return 0;

}

Problem 3:

#include <stdio.h>

int main()

{

int i, j, n;

printf("Enter value of n: ");

scanf("%d", &n);

for(i=1; i<=n; i++)

{

for(j=2; j<=i; j++)

{

printf("#");

}

for(j=1; j<=n; j++)

{

if(j==i)

{

printf("$");

}

}

for(j=i+1; j<=n; j++)

{

printf("@");

}

printf("\n");

}

return 0;

}

Problem 4:

#include <stdio.h>

int main()

{

int i, j, row;

printf("Enter value of row : ");

scanf("%d", &row);

for(i=1; i<=row; i++)

{

for(j=i; j<=row-1; j++)

{

printf("#");

}

for(j=1; j<=(2\*i); j++)

{

printf(" ");

}

for(j=i; j<=row-1; j++)

{

printf("#");

}

printf("\n");

}

for(i=1; i<=row; i++)

{

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

{

printf("#");

}

for(j=(2\*i-2); j<(2\*row); j++)

{

printf(" ");

}

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

{

printf("#");

}

printf("\n");

}

return 0;

}

Problem 5:

#include <stdio.h>

int main()

{

int n, c, k;

printf("Enter number of rows\n");

scanf("%d", &n);

for (k = 1; k <= n; k=k+2)

{

for (c = 1; c <= n-k; c=c+2)

printf(" ");

for (c = 1; c <= 2\*k-1; c=c+2)

printf("\*");

for (c = 1; c <= n-k; c=c+2)

printf(" ");

for (c = 1; c <= 2\*k-1; c=c+2)

printf("\*");

printf("\n");

}

for (k = 1; k <= n-1 ; k=k+2)

{

for (c = 1; c <= k; c=c+2)

printf(" ");

for (c = 1 ; c <= 2\*(n-k)-2; c=c+2)

printf("\*");

for (c = 1; c <= k; c=c+2)

printf(" ");

for (c = 1 ; c <= 2\*(n-k)-2; c=c+2)

printf("\*");

printf("\n");

}

return 0;

}

Problem 6:

#include<stdio.h>

int main()

{

int i, j, n;

printf("Enter value of n: ");

scanf("%d", &n);

for(i=1; i<=n; i++)

{

for(j=1; j<=i; j++)

{ if(i%2==0)

{printf("&");}

else

{printf("#");

}}

for(j=1; j<=(n\*2 -(2\*i-1)-1); j++)

{

printf(" ");

}

for(j=1; j<=i; j++)

{

if(i%2==0)

{printf("#");}

else

{printf("&");}

}

printf("\n");

}

return 0;

}

Problem 7:

#include <stdio.h>

int main()

{

int i, j, N;

printf("Enter number of rows: ");

scanf("%d", &N);

for(i=1; i<=N; i++)

{

for(j=1; j<=N; j++)

{

if(i==1 || i==N || j==1 || j==N || i==j || j==(N - i + 1))

{

printf("@");

}

else

{

printf(" ");

}

}

printf("\n");

}

return 0;

}

Problem 8:

#include <stdio.h>

int main()

{

int i, j, N;

int count;

printf("Enter N: ");

scanf("%d", &N);

for(i=1; i<=N; i++)

{

for(j=1; j<=N; j++)

{

if(j==i || (j==N - i + 1))

{

if(j==(N/2)+1&&i==(N/2)+1)

{

printf("?");

}

else

{printf("@");

}}

else

{

printf(" ");

}

}

printf("\n");

}

return 0;

}

Problem 9:

#include <stdio.h>

int main()

{

int i, j, rows;

printf("Enter number of rows : ");

scanf("%d", &rows);

for(i=1; i<=(rows/2)+1; i++)

{

for(j=1; j<i; j++)

{

printf(" ");

}

for(j=1; j<=(rows -(2\*i-1)+1); j++)

{

printf("@");

}

printf("\n");

}

for(i=2; i<=(rows/2)+1; i++)

{

for(j=i; j<rows-i; j++)

{

printf(" ");

}

for(j=2; j<=(2\*i-1)+1; j++)

{

printf("@");

}

printf("\n");

}

return 0;

}