**Pattern Programs**

**P1.cpp**

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for (i=0; i<rows; i++) {

for (j=0; j<columns; j++) {

cout << "\*";

}

cout << "\n";

}

**P2.cpp**

**1111**

**2222**

**3333**

for (i=0; i<rows; i++) {

for (j=0; j<columns; j++) {

cout << i+1;

}

cout << "\n";

}

**P3.cpp**

**1234**

**1234**

**1234**

for (i=0; i<rows; i++) {

for (j=0; j<columns; j++) {

cout << j+1;

}

cout << "\n";

}

**P4.cpp**

**3333**

**2222**

**1111**

for (i=rows; i>0; i--) {

for (j=0; j<columns; j++) {

cout << i;

}

cout << "\n";

}

**P5.cpp**

**4321**

**4321**

**4321**

for (i=rows; i>0; i--) {

for (j=columns; j>0; j--) {

cout << j;

}

cout << "\n";

}

**P6.cpp**

**AAAA**

**BBBB**

**CCCC**

for (i=0; i<rows; i++) {

for (j=0; j<columns; j++) {

cout << char('A'+i);

}

cout << "\n";

}

**P7.cpp**

**ABCD**

**ABCD**

**ABCD**

for (i=0; i<rows; i++) {

for (j=0; j<columns; j++) {

cout << char('A'+j);

}

cout << "\n";

}

**P8.cpp**

**CCCC**

**BBBB**

**AAAA**

for (i=rows-1; i>=0; i--) {

for (j=0; j<columns; j++) {

cout << char('A'+i);

}

cout << "\n";

}

**P9.cpp**

**DCBA**

**DCBA**

**DCBA**

for (i=0; i<rows; i++) {

for (j=columns-1; j>=0; j--) {

cout << char('A'+j);

}

cout << "\n";

}

**P10.cpp**

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for (i=0; i<rows; i++) {

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

cout << "\*";

}

cout << "\n";

}

**P11.cpp**

**1**

**22**

**333**

**4444**

for (i=0; i<rows; i++) {

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

cout << i+1;

}

cout << "\n";

}

**P12.cpp**

**1**

**12**

**123**

**1234**

for (i=0; i<rows; i++) {

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

cout << j+1;

}

cout << "\n";

}

**P13.cpp**

**A**

**BB**

**CCC**

**DDDD**

for (i=0; i<rows; i++) {

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

cout << char('A'+i);

}

cout << "\n";

}

**P14.cpp**

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for (i=0; i<rows; i++) {

for (j=rows-i; j>0; j--) {

cout << "\*";

}

cout << "\n";

}

**P15.cpp**

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for (i=0; i<rows; i++) {

//Space loop

for (j=rows-1; j>i; j--) {

cout << " ";

}

//Print loop

for (k=0; k<=i; k++) {

cout << "\*";

}

cout << "\n";

}

**P16.cpp**

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for (i=0; i<rows; i++) {

//Space loop

for (j=rows-1; j>i; j--) {

cout << " ";

}

//Print loop

for (k=0; k<=i; k++) {

cout << "\* ";

}

cout << "\n";

}

**P17.cpp**

**1**

**22**

**333**

**4444**

for (i=0; i<rows; i++) {

//Space loop

for (j=rows-1; j>i; j--) {

cout << " ";

}

//Print loop

for (k=0; k<=i; k++) {

cout << i+1;

}

cout << "\n";

}

**P18.cpp**

**1**

**12**

**123**

**1234**

for (i=0; i<rows; i++) {

//Space loop

for (j=rows-1; j>i; j--) {

cout << " ";

}

//Print loop

for (k=0; k<=i; k++) {

cout << k+1;

}

cout << "\n";

}

**P19.cpp**

**A**

**BB**

**CCC**

**DDDD**

for (i=0; i<rows; i++) {

//Space loop

for (j=rows-1; j>i; j--) {

cout << " ";

}

//Print loop

for (k=0; k<=i; k++) {

cout << char(‘A’+i);

}

cout << "\n";

}

**P20.cpp**

**A**

**AB**

**ABC**

**ABCD**

for (i=0; i<rows; i++) {

//Space loop

for (j=rows-1; j>i; j--) {

cout << " ";

}

//Print loop

for (k=0; k<=i; k++) {

cout << char(‘A’+k);

}

cout << "\n";

}

**P21.cpp**

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for (i=rows; i>0; i--) {

//Space loop

for (j=rows-1; j>i; j--) {

cout << " ";

}

//Print loop

for (k=0; k<i; k++) {

cout << "\*";

}

cout << "\n";

}

**P22.cpp**

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for (i=1; i<=5; i++) {

for (j=1; j<=5; j++) {

if (i==3 || j==3)

cout << "\*";

else

cout << " ";

}

cout << "\n";

}

**P23.cpp**

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for (i=1; i<=5; i++) {

for (j=1; j<=5; j++) {

if (i==j)

cout << "\*";

else

cout << " ";

}

cout << "\n";

}

**P24.cpp**

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for (i=1; i<=5; i++) {

for (j=1; j<=5; j++) {

if (i==j || i+j==6)

cout << "\*";

else

cout << " ";

}

cout << "\n";

}

**P25.cpp**

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**\*\*\*\*\***

for (i=1; i<=5; i++) {

for (j=1; j<=5; j++) {

if (i==1 || i==5 || j==1 || j==5)

cout << "\*";

else

cout << " ";

}

cout << "\n";

}

**P26.cpp**

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int i{0}, j{0}, k{0}, l{1}, rows{0};

cout << "Enter number of rows:" << "\n";

cin >> rows;

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

//Space loop

for (j=rows-1; j>=i; j--) {

cout << " ";

}

//Print loop

for (k=1; k<=l; k++) {

cout << "\*";

}

l=l+2;

cout << "\n";

}