```
start
  │
  ▼
Declare variables
unsigned short x;
char shape;
  │
  ▼
print "Create a numbered
shape that can be sized."
  │
  ▼
print "Input an integer
number [1,50] and a
character [x,b,f]."
  │
  ▼
Read x and
shape
  │
  ▼
switch(shape)
  │
  ▼
case 'x' ──Yes──► xtreme(x) ──────────────────────────────────┐
  │                                                            │
  ▼                                                            │
case 'b' ──Yes──► if(x%2==0) ──Yes──► evenBackslash(x) ────────┤
  │                    │                                       │
  │                    No                                      │
  │                    ▼                                       │
  │               oddBackslash(x); ───────────────────────────┤
  ▼                                                            │
case 'f' ──Yes──► if(x%2==0) ──Yes──► evenForwardslash(x) ─────┤
  │                    │                                       │
  │                    No                                      ▼
  │                    ▼                                     End
  │               oddForwardslash(x); ──────────────────────► │
  ▼                                                            │
default ──────► Print" Not a                                   │
                valid shape" ─────────────────────────────────┘
```

```
void xtreme
(unsigned short x)
```

```
Declare unsigned
short "track" equal to
"x"
```

```
int row =1
```

row<=x → **Yes** → `int col =1` → col<=x → **Yes** → row==col → **Yes** → x%2==0 → **Yes** → print col

row<=x → end

`coll++`

col<=x → **No** → print endl → row++

row==col → **No**

x%2==0 → **No** → print track

col==(x+1)-row → **Yes** → x%2==0 → **Yes** → Print track

col==(x+1)-row → **No** → Print space

x%2==0 → **No** → print row

```
                    ┌──────────────────┐
                    │       void       │
                    │  oddForwardslash │
                    │ (unsigned short x)│
                    └──────────────────┘
                              │
                              ▼
                    ┌──────────────────┐
                    │    int row =x    │
                    └──────────────────┘
                              │
                              ▼
                         ◇ row>=1 ◇ ──Yes──→ ┌ int col =x ┐ ──→ ◇ col>=1 ◇ ──Yes──→ ◇ col== (x-row+1) ◇ ──Yes──→ / print col /
                                                                      │                         │
                                                                      ▼                         No
                                                                 / print endl /                 ▼
                    ┌ col-- ┐ ←───────────────                                              / Print space /
                    ┌ row-- ┐ ←───────────────
                         │
                         ▼
                    ┌──────────┐
                    │   end    │
                    └──────────┘
```

void
oddForwardslash
(unsigned short x)

int row =x

row>=1   Yes   int col =x   col>=1   Yes   col==(x-row+1)   Yes   print col

col--

print endl

Print space

No

row--

end

```
          ┌─────────────────┐
          │      void       │
          │ evenForwardslash│
          │ (unsigned short x│
          └─────────────────┘

          ┌─────────────────┐
          │ unsigned short  │
          │    track=x      │
          └─────────────────┘

          ┌─────────────────┐
          │   int row =x    │
          └─────────────────┘

    ◇ row>=1 ◇ ──Yes──→ [ int col =x ] ──→ ◇ col>=1 ◇ ──Yes──→ ◇ col== (x-row+1) ◇ ──Yes──→ / print track /
                                                                                                    │
                                                                              No                 track++
                                                                                                    │
         [ col-- ] ←── / print endl /    / Print space /

         [ row-- ] ←──

          ◯ end
```

Flowchart: `void evenForwardslash (unsigned short x`

- `unsigned short track=x`
- `int row =x`
- Decision: `row>=1` — Yes → `int col =x`
- Decision: `col>=1` — Yes → Decision: `col==(x-row+1)`
  - Yes → `print track` → `track++` → `Print space`
  - No → `Print space`
- `print endl`
- `col--`
- `row--`
- `end`

```
                    ┌──────────────────────┐
                    │  void oddBackslash   │
                    │  (unsigned short x)  │
                    └──────────────────────┘
                              │
                              ▼
                    ┌──────────────────────┐
                    │   unsigned short     │
                    │      track=x         │
                    └──────────────────────┘
                              │
                              ▼
                    ┌──────────────────────┐
                    │     int row =1       │
                    └──────────────────────┘
                              │
                              ▼
                    ◇ row<=x ◇ ──Yes──▶ │ int col =1 │ ──▶ ◇ col<=x ◇ ──Yes──▶ ◇ row==col ◇ ──Yes──▶ ╱ print track ╱
                              │                                     │                      │                        │
                              │                                  print endl               No                    │ track-- │
                              │                                     │                      │                        │
                       │ col++ │ ◀──────── ╱ print endl ╱          │                 ╱ Print space ╱             │
                              │                                     │                      │                        │
                       │ row++ │ ◀────────────────────────────────┘──────────────────────┘────────────────────────┘
                              │
                              ▼
                    ┌──────────────────────┐
                    │        end           │
                    └──────────────────────┘
```

```
                    ┌─────────────────┐
                    │ void evenBackslash │
                    │ (unsigned short x) │
                    └─────────────────┘
                             │
                             ▼
                    ┌─────────────────┐
                    │    int row =1    │
                    └─────────────────┘
                             │
                             ▼
         ◆ row<=x ◆──Yes──▶ ┌ int col =1 ┐──▶ ◆ col<=x ◆──Yes──▶ ◆ row==col ◆──Yes──▶ / print row /
                                                   │                     │
                                                   ▼                     No
                                              / print endl /            ▼
         ┌ col++ ┐◀─────────────────────────                    / Print space /
         ┌ row++ ┐◀────────────────────────────────────────
                             │
                             ▼
                          ( end )
```

void evenBackslash (unsigned short x)

int row =1

row<=x — Yes → int col =1 → col<=x — Yes → row==col — Yes → print row

col<=x — (down) → print endl

row==col — No → Print space

col++

row++

end