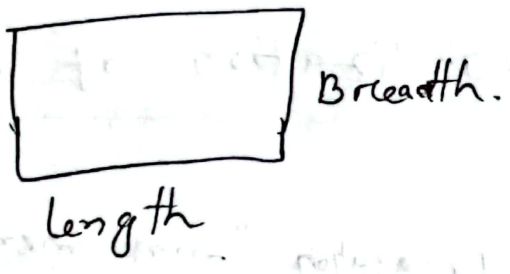
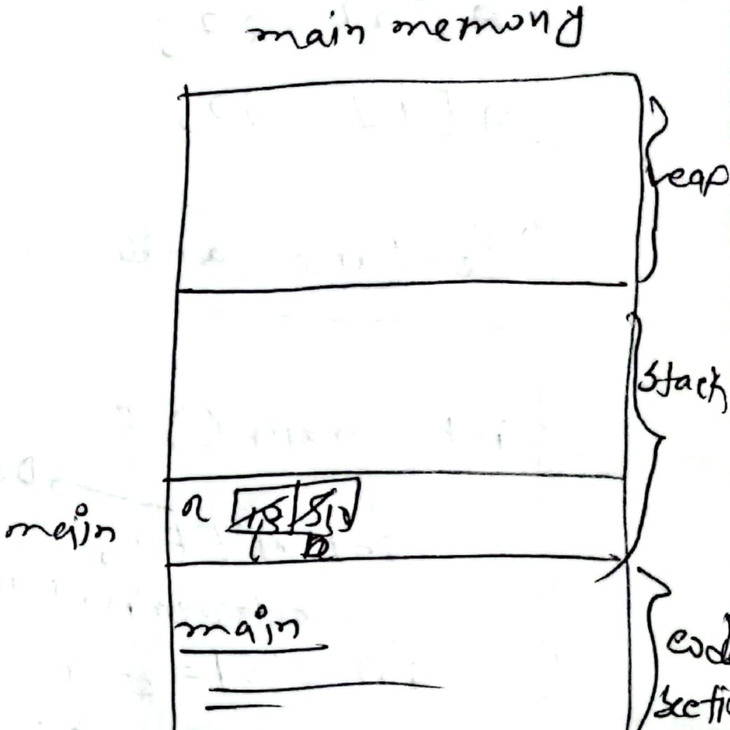
Structures

Collection of data members, that are related under one name. and those data members may be of similar type. may be of disimilar types.

Rectangle:



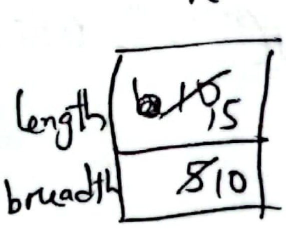


```
struct Rectangle {
    int length;  ——— 2
    int breadth; ——— 2
                 ————
                 4 bytes
};

int main () {
```

declaration struct Rectangle r;

declaration & struct Rectangle r = {10, 5}; initialization.



```
r.length = 15;
r.breadth = 10;

printf("Area of a rectangle is %d",
                              r.length * r.breath);
```

1. Complex Number:

$a + \underset{\sqrt{-1}}{\underset{\downarrow}{i}}b$

```
struct Complex {
   int real; ———————————— 2
   int img; // imaginary — 2
                          ______
};                        4 bytes.
```

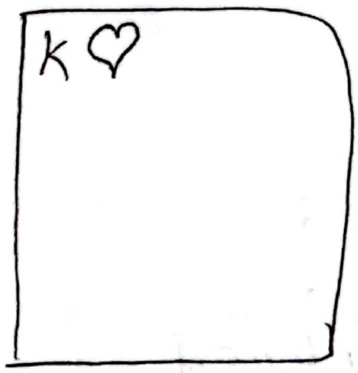
2. Student:

```
struct student {
   int roll; ——————— 2
   char name[25]; — 25
   char dept[10]; — 10
   address [50]; —— 50
                  ________
};                 87 bytes.
```

```
int main(){
    struct student s;

     s.roll =10;
     s.name = "John";
          :
          :
}
```

3. cards

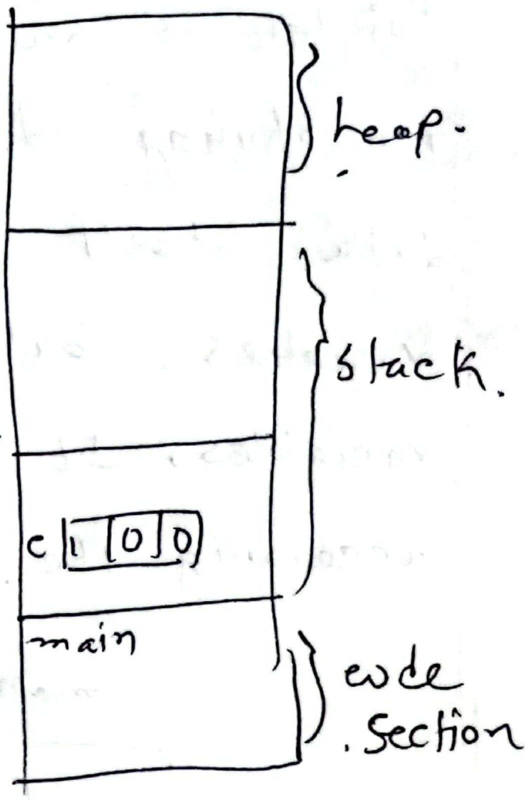


face - 1, 2, ... 10, $\overset{11}{J}$, $\overset{12}{Q}$, $\overset{13}{K}$

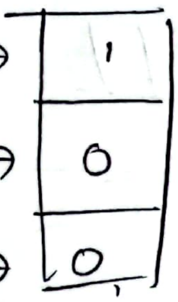
$$\begin{tikzcd}
\text{shape -} & 0 \arrow[d] & 1 \arrow[d] & 2 \arrow[d] & 3 \arrow[d] \\
 & ♣ & ♠ & ♦ & ♥
\end{tikzcd}$$

$$\begin{tikzcd}
\text{color -} & 0 \arrow[d] & 1 \arrow[d] \\
 & \text{black.} & \text{red.}
\end{tikzcd}$$

```
struct cand {
  int face ; — 2
  int shape ; — 2
  int colon ; — 2
                ------
  };            6 bytes.
```



```
int main() {
  struct cand c;
  c. face = 1; →
  c. shape = 0; →
  c. colon = 0; →
```



```
struct cand c = {1, 0, 0}.
```

```
int main () {.
  struct cand deck[52]; 52 x 6 = 312 bytes.

  deck[52] = {{1,0,0}, {2,0,0}, ...
              {1,1,0}, {2,1,0}. .}};
printf("%d", deck[0].face);
printf("%d", deck[0].shape); }.
```