Linguagens de Programação 1

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http://github.com/fsantanna-uerj/LP1

Vetores
Arrays
Strings

Vetores

```
int v;
int vs[4];

v = 10;
printf("%d", v);

vs = ?;
printf("%?", vs);
```

endereço	id	valor
	v	
	vs	
	ys	

Vetores

```
int xs[4];
int ys[4];

printf("%p %p\n", &xs, &ys);

printf("%p %p %p %p %p %p\n",
        xs,xs+0,xs+1,xs+2,xs+3,xs+4);
```

endereço	id	valor
	xs	
	ys	
	...	

Vetores

```
int xs[4];
int ys[4];

*(xs+3) = 10; // xs[3]=10
printf("%d\n", xs[3]);

printf("%p %p\n", (xs+3), &xs[3]);
scanf("%d", &xs[1]);
```

endereço	id	valor
	xs	
	ys	
	...	

Exercícios 1 - X

- No site:
- https://github.com/fsantanna-uerj/LP1/blob/master/Exercicios/lp1-06-vetores.md

Arrays

- Vetor: array de dimensão 1
  - `int vs[2];`
- C também suporta arrays de múltiplas dimensões
  - `int vs[3][2];`
  - 3 linhas e 2 colunas

Arrays

```
int vs[3][2] = { {1,2},{3,4},{5,6} };
printf("%d %d\n", vs[0][1], vs[1][0]);
printf("%p %p\n", &vs, &vs[0][0]);
printf("%p\n",          &vs[0][1]);
printf("%p\n",          &vs[1][0]);
```

endereço	id	valor
	vs	

```
int soma = 0;
for (int i=0; i<3; i++) {
    for (int j=0; j<2; j++) {
        soma += vs[i][j];
    }
}
printf("soma = %d\n", soma);
```

05-arrays.c

Arrays

```
int xs[3][2] = { {1,2},{3,4},{5,6} };
… f(xs) …

void f (int ys[3][2]);
void f (int ys[][3]);
void f (int ys[3][]);
void f (int* ys);
void f (int** ys);
```

endereço	id	valor
	xs	
	ys	

Arrays

```
void f (int ys[3][2]);
void f (int ys[][3]);
void f (int ys[3][]);
void f (int* ys);
void f (int** ys);


void f (int* ys) {
    int L,C = ?,?;
    for (int i=0; i<L; i++) {
        for (int j=0; j<C; j++) {
            … ys …
        }
    }
}
```

endereço	id	valor
	xs	
	ys	

Exercícios 1 - X

- No site:
- https://github.com/fsantanna-uerj/LP1/blob/master/Exercicios/lp1-06-arrays.md

Strings

```
char s1[] = “abc”;
char s2[] = “def”;

printf(“%s/%s\n”, s1, s2);

printf(“%d\n”, strlen(s1));

printf(“%d %d %d %d %d\n”,
        s1[0],s1[1],s1[2],s1[3],s1[4]);
```

endereço	id	valor
	s1	

Strings

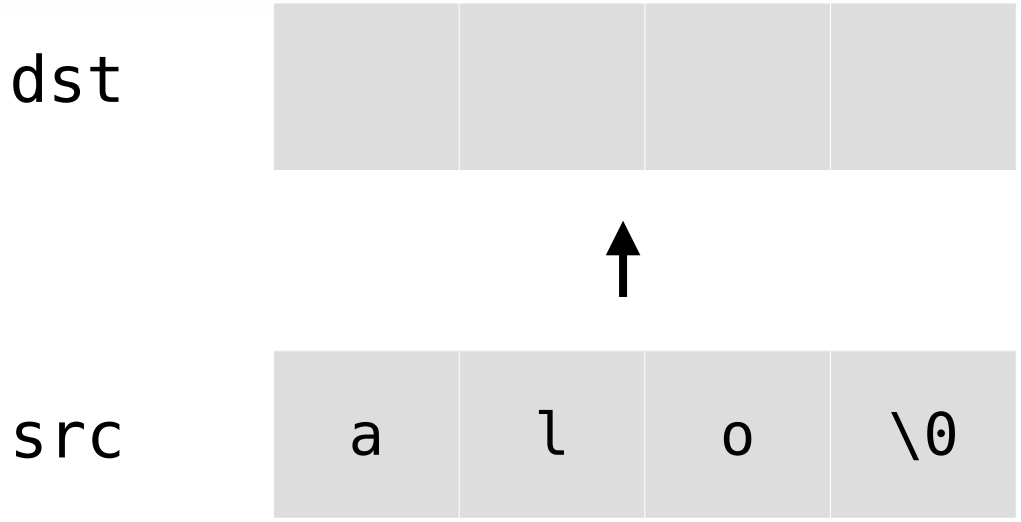
```
char s1[] = “abc”;

char s2[4];
char s2[0] = ‘a’;
char s2[1] = ‘b’;
char s2[2] = ‘c’;
char s2[3] = ‘\0’; // 0

printf(“%s/%s\n”, s1, s2);
```

Strings

- `strncpy`
  - Copia uma string para um destino
  - `char* strncpy (char* dst, char* src, int n)`



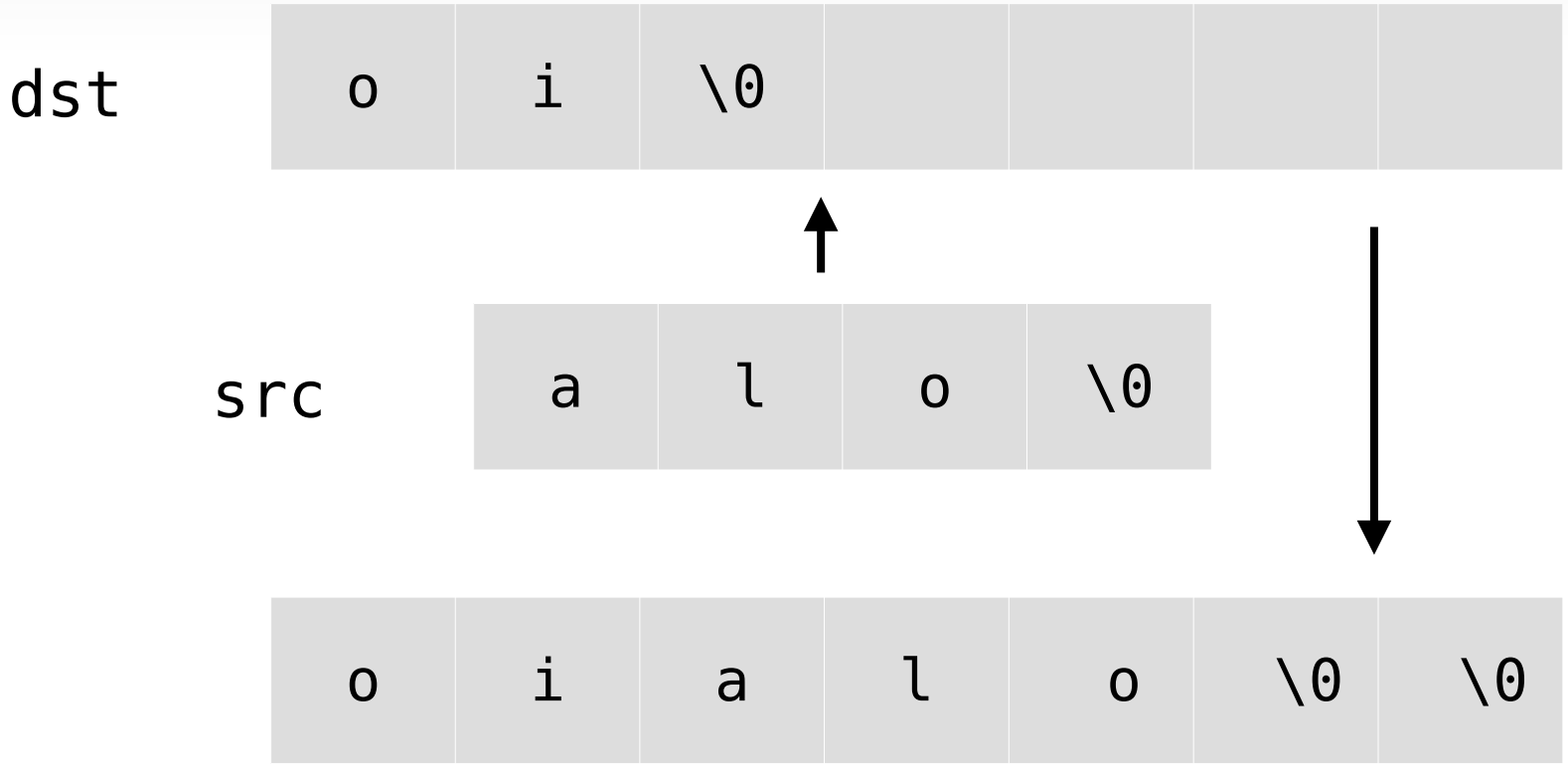
`dst = src;  (?)`

03-strncpy.c

Strings

04-strncat.c

- strncat
  - Concatena (une) duas strings
  - char* strncat (char* dst, char* src, int n)



Exercícios 1 - 2

- No site:
- https://github.com/fsantanna-uerj/LP1/blob/master/Exercicios/lp1-06-strings.md