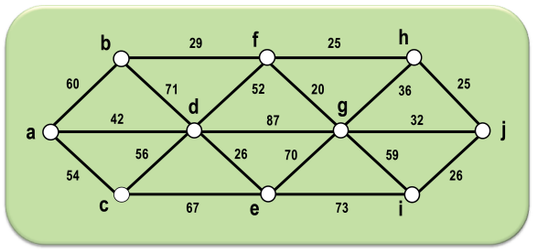
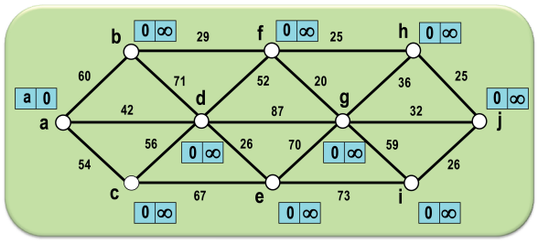
Universidade Federal do Piauí – UFPI
Campus Senador Helvídio Nunes de Barros – CSHNB
Curso de Sistemas de Informação Bloco: IV
Disciplina: Estruturas de Dados II
Professora: Juliana Oliveira de Carvalho
Acadêmico:……Matrícula:.....

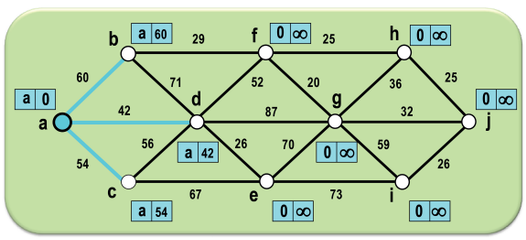
TRABALHO REFERENTE A AVALIAÇÃO 3 - PARTE 1

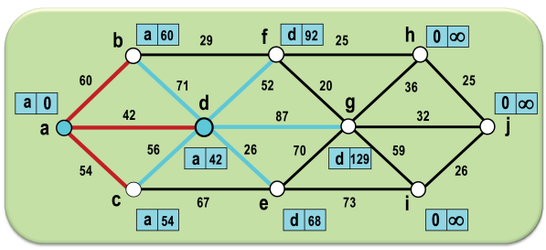
(Equivale a 40% da nota do Trabalho)

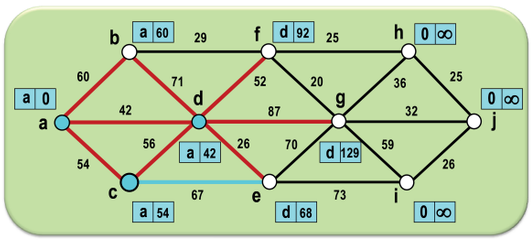
1) Explique o algoritmo de Dijkstra para o caminho mais curto em grafo usando as figuras do exemplo a seguir, depois implemente em C o algoritmo de Dijkstra.

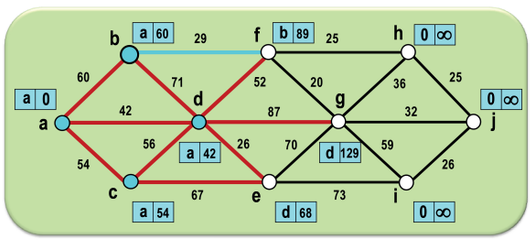


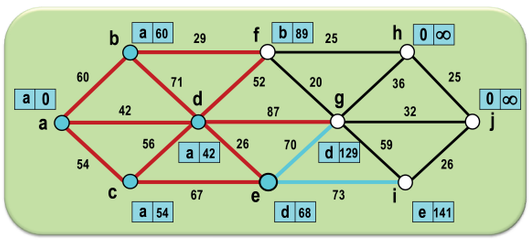


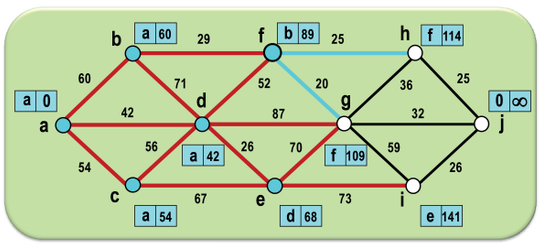


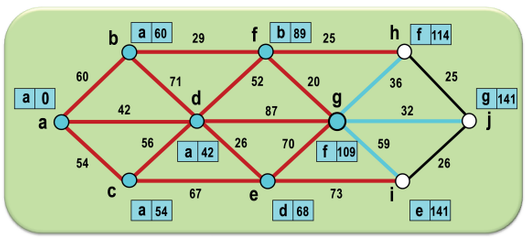


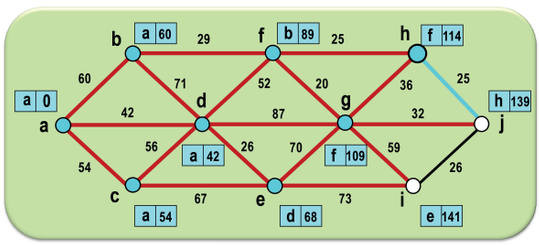


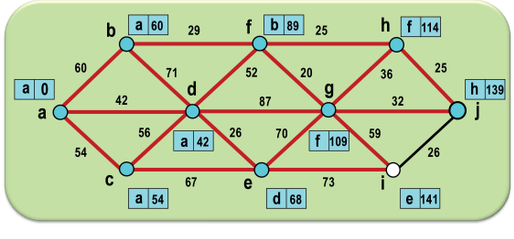


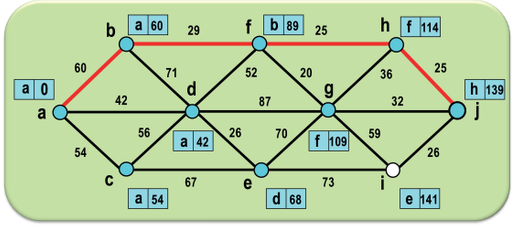












A

Dijkstra

Ler $G = (N,M)$ e $D=[d_{ij}]$, onde d_{ij} é o custo da aresta (i,j)
$dt[1] \leftarrow 0$
$rot[1] \leftarrow \infty$
Para $i \leftarrow 2$ **até** n **Faça**
    $dt[i] \leftarrow \infty$
    $rot[i] \leftarrow 0$
Fim_Para
$A \leftarrow \{N\}$
$F \leftarrow \varnothing$
Enquanto $F \neq N$ **Faça**
    $r \leftarrow j \in A$, tal que $dt[j]$ é mínimo dentre os elementos de A
    $F \leftarrow F \cup \{r\}$
    $A \leftarrow A \setminus \{r\}$
    $V \leftarrow V \setminus F$
    Para $i \in V$ **Faça**
        $p \leftarrow min\ \{dt[i], (dt[r] + d_{ri})\}$
        Se $p < dt[i]$
            $dt[i] \leftarrow p$
            $rot[i] \leftarrow r$
        Fim_Se
    Fim_Para
Fim_Enquanto