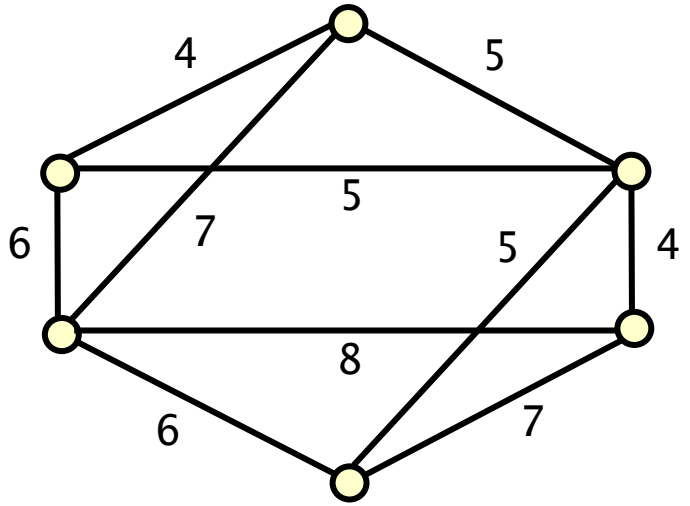
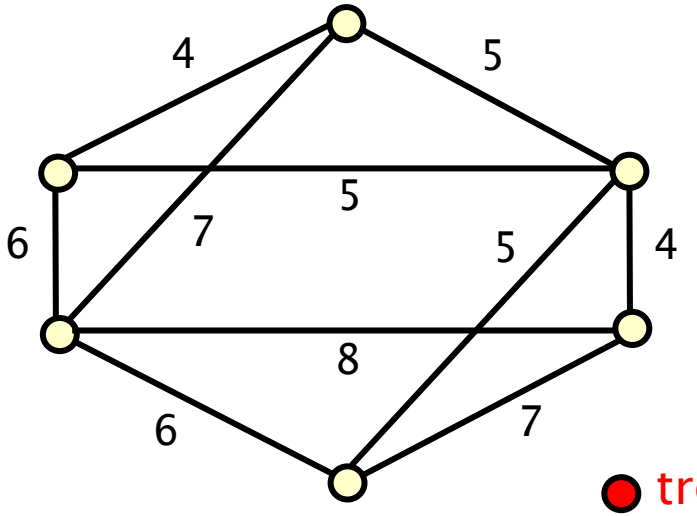
The Prim–Jarnik algorithm – Example

Weighted graph **G**



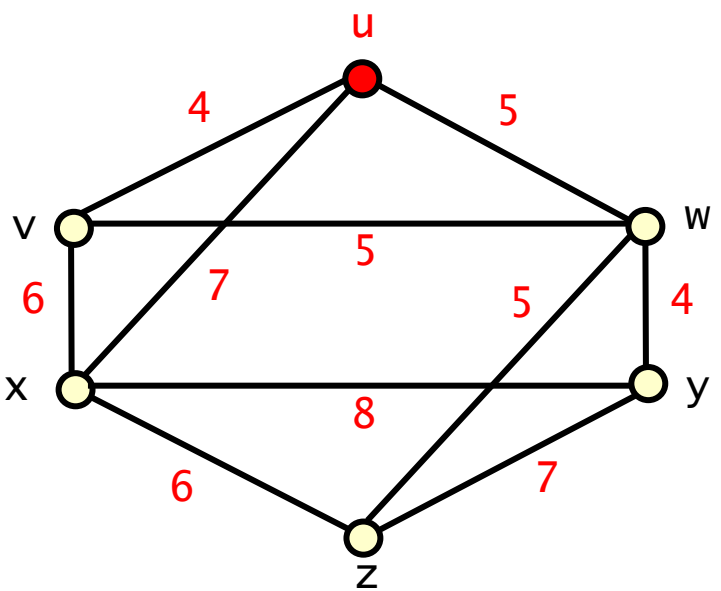
The Prim–Jarnik algorithm – Example

Weighted graph **G**



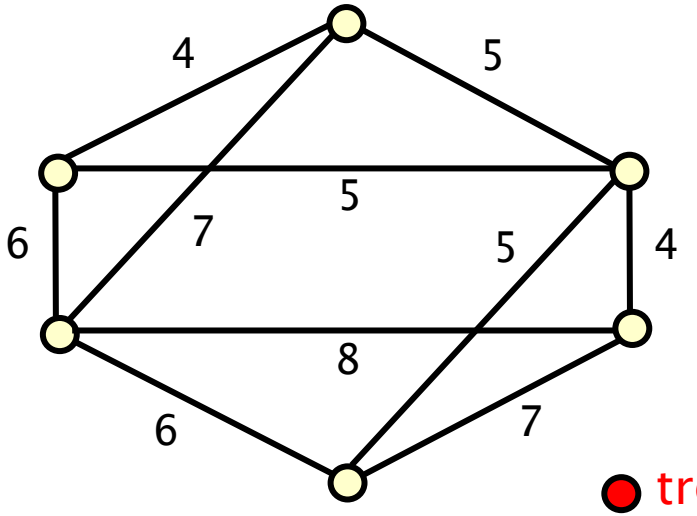
tree vertices: u

non-tree vertices: v, w, x, y, z



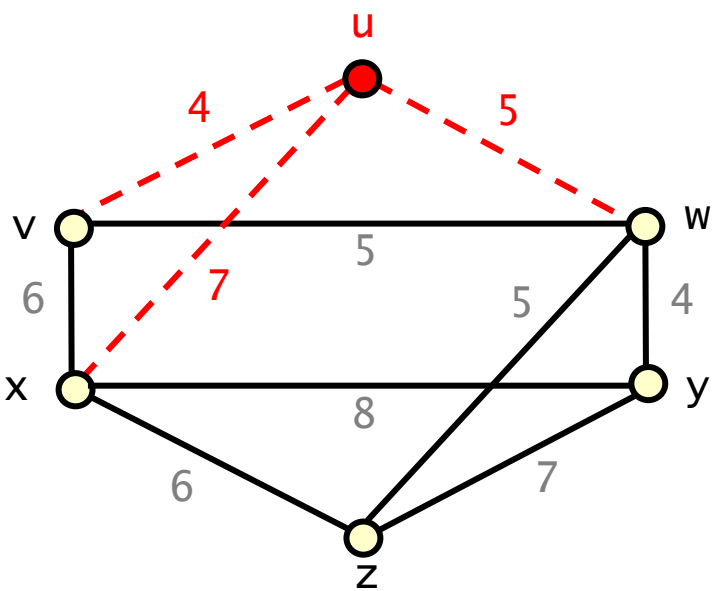
The Prim–Jarnik algorithm – Example

Weighted graph G



tree vertices: u

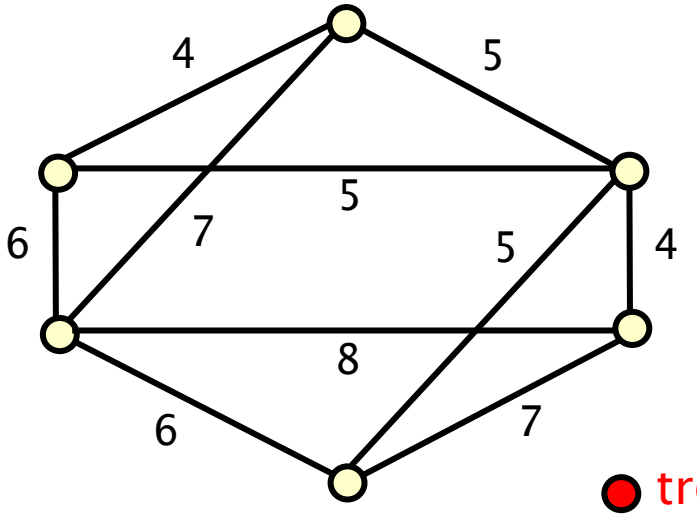
non-tree vertices: v, w, x, y, z



consider all tree vertex and non-tree vertex edges

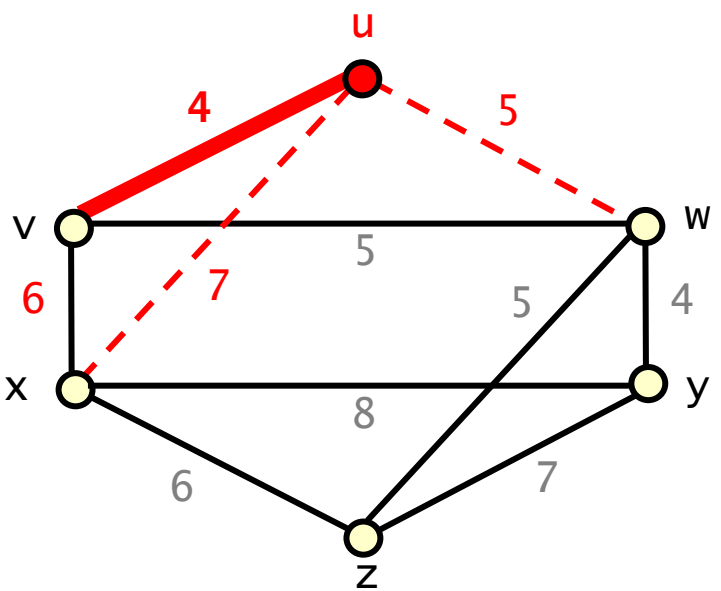
The Prim–Jarnik algorithm – Example

Weighted graph G



tree vertices: u

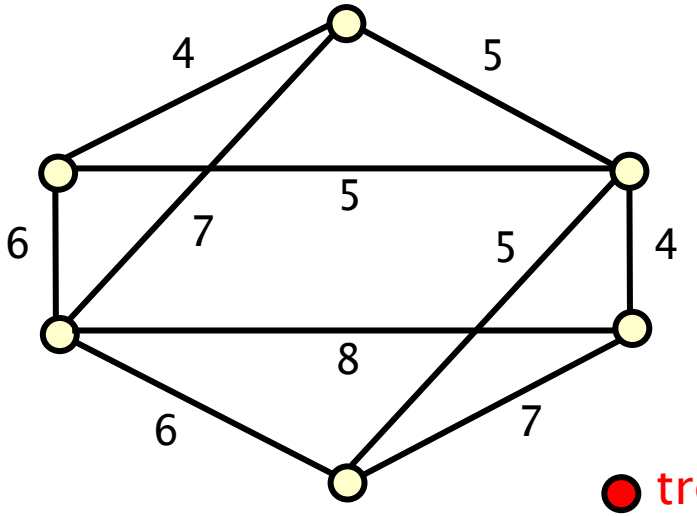
non-tree vertices: v, w, x, y, z



minimum such edge is {u, v}

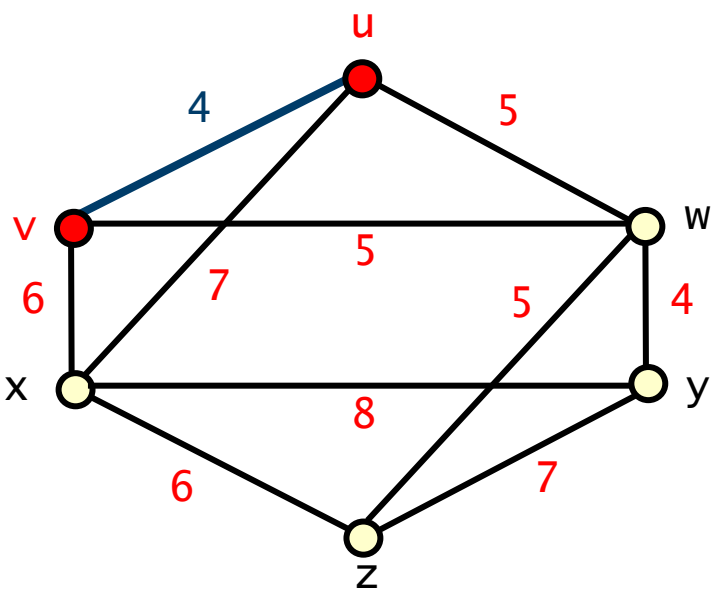
The Prim–Jarnik algorithm – Example

Weighted graph **G**



tree vertices: u, v

non-tree vertices: w, x, y, z

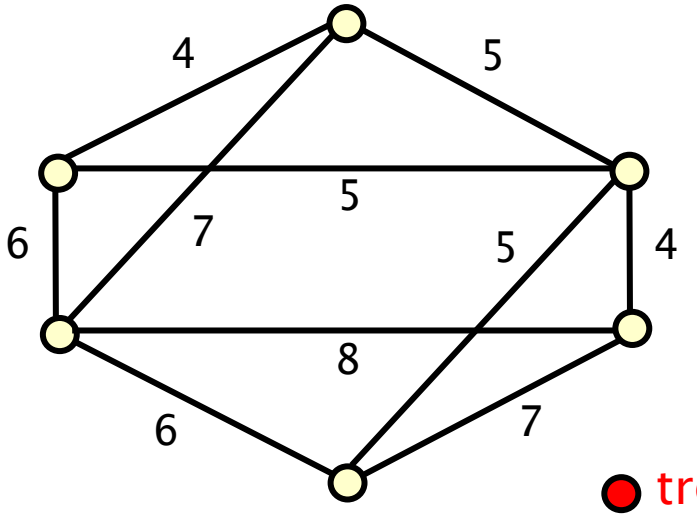


make v a tree vertex

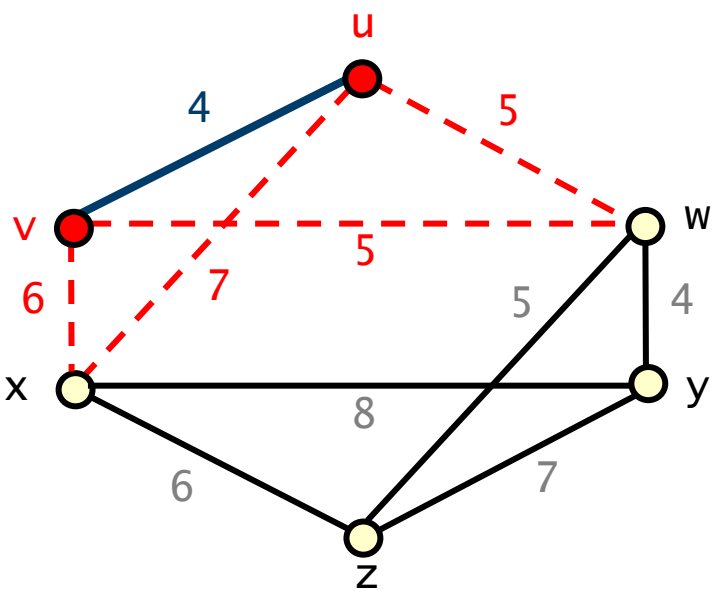
& add edge to the tree

The Prim–Jarnik algorithm – Example

Weighted graph G



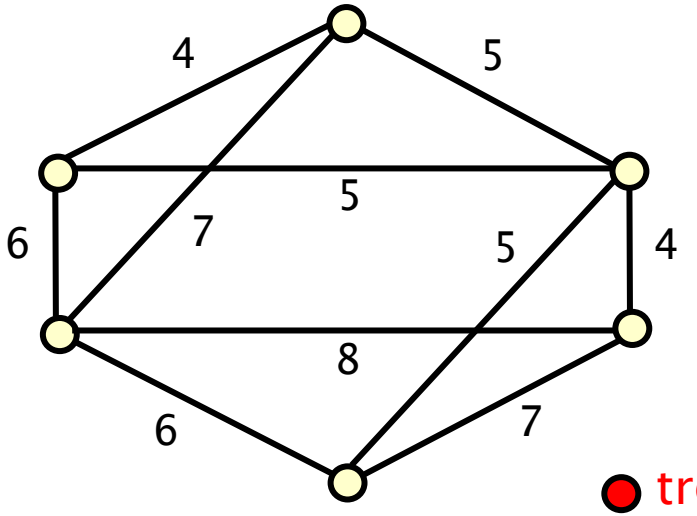
tree vertices: u, v
non-tree vertices: w, x, y, z



consider all tree vertex and non-tree vertex edges

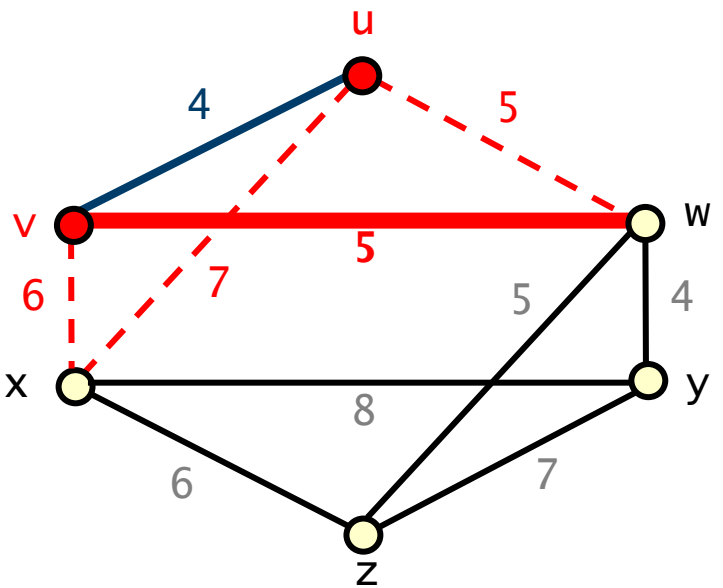
The Prim–Jarnik algorithm – Example

Weighted graph G



tree vertices: u, v

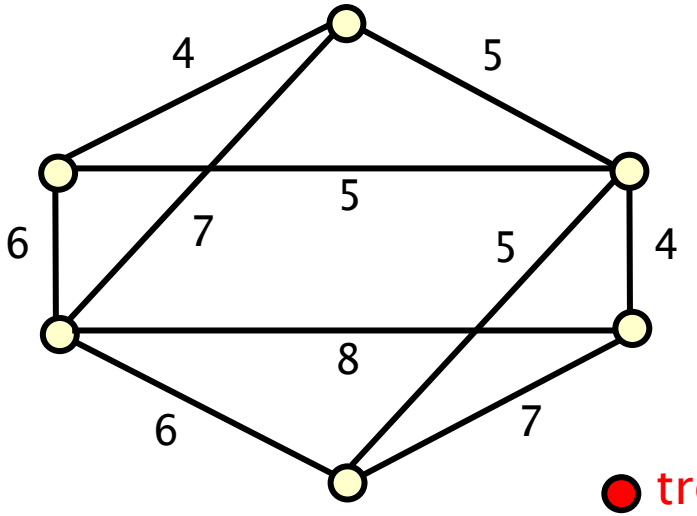
non-tree vertices: w, x, y, z



minimum such edge is {v, w}

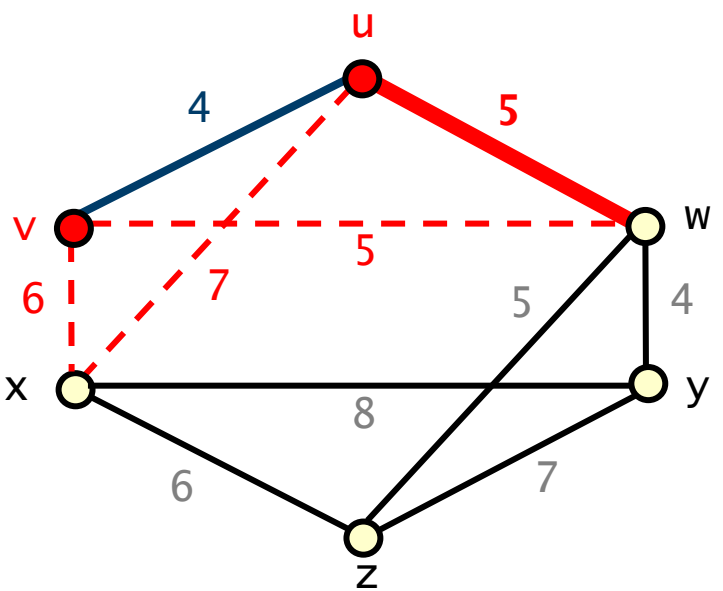
The Prim–Jarnik algorithm – Example

Weighted graph G



tree vertices: u, v
non-tree vertices: w, x, y, z

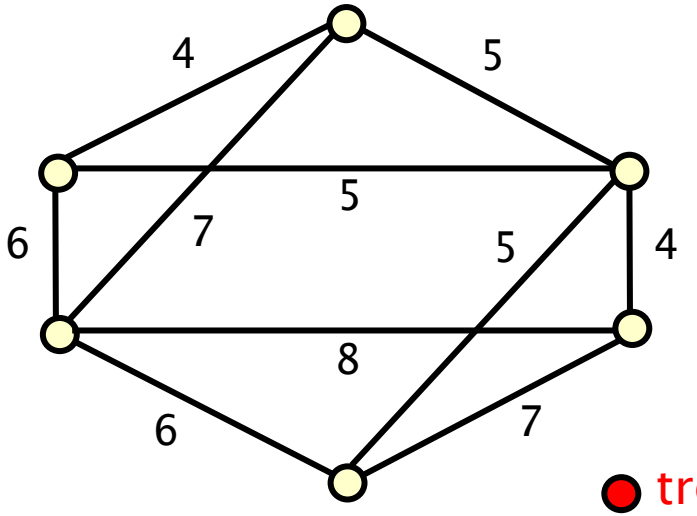
could also have chosen {u, w}



minimum such edge is {v, w}

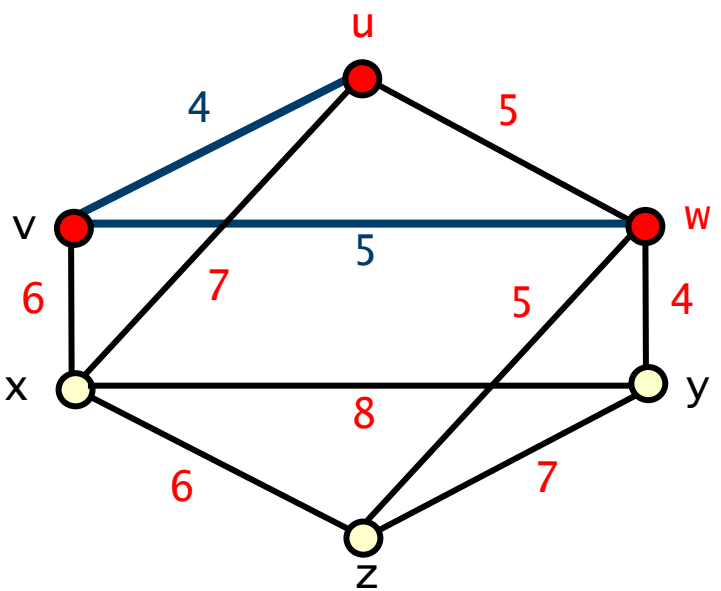
The Prim–Jarnik algorithm – Example

Weighted graph **G**



tree vertices: u, v, w

non-tree vertices: x, y, z

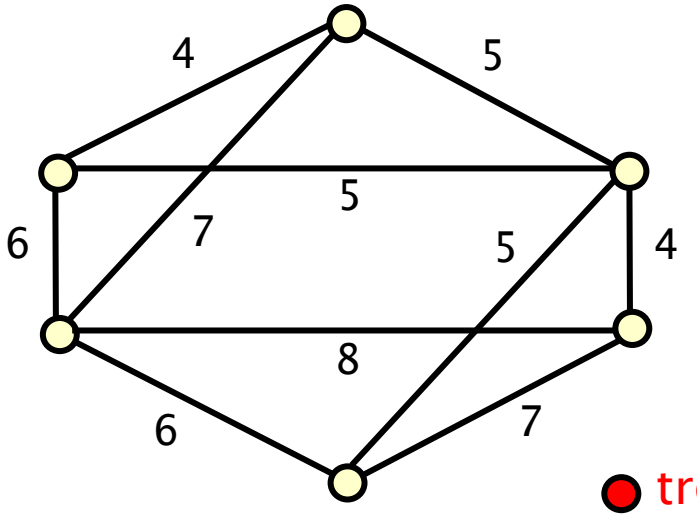


make w a tree vertex

& add edge to the tree

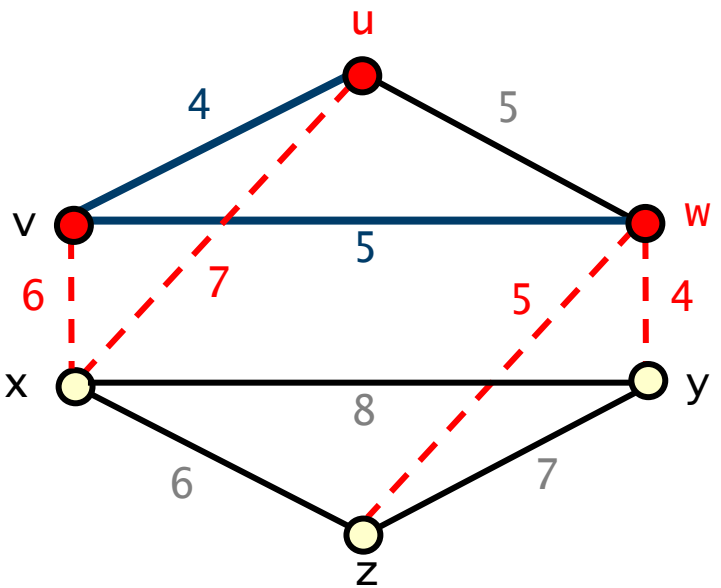
The Prim–Jarnik algorithm – Example

Weighted graph G



tree vertices: u, v, w

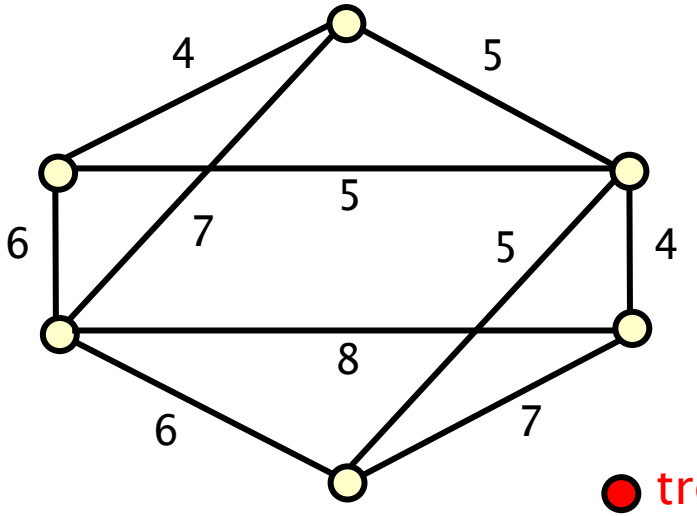
non-tree vertices: x, y, z



consider all tree vertex and non-tree vertex edges

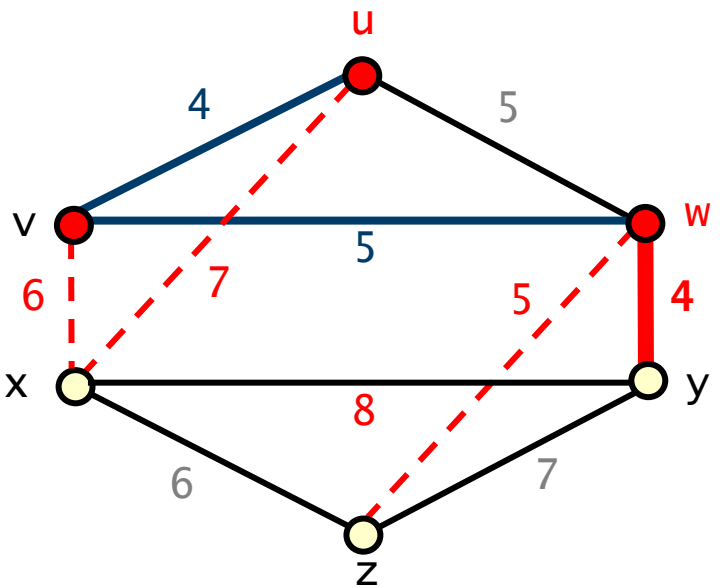
The Prim–Jarnik algorithm – Example

Weighted graph G



tree vertices: u, v, w

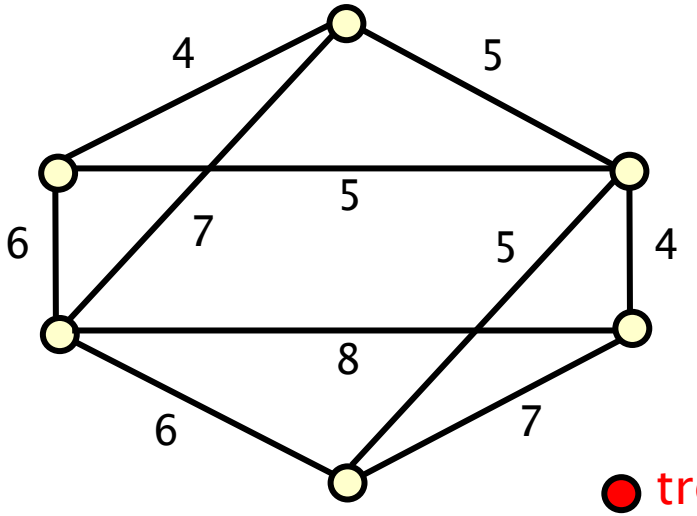
non-tree vertices: x, y, z



minimum such edge is {w,y}

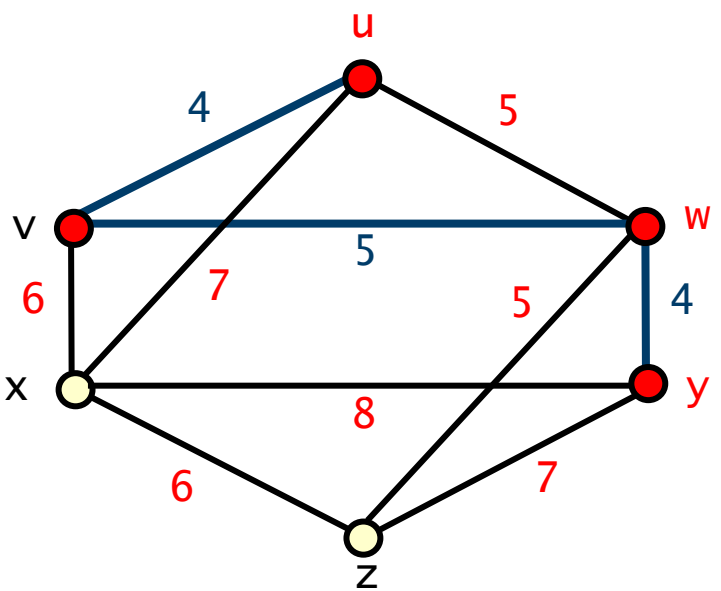
The Prim–Jarnik algorithm – Example

Weighted graph **G**



tree vertices: u, v, w, y

non-tree vertices: x, z

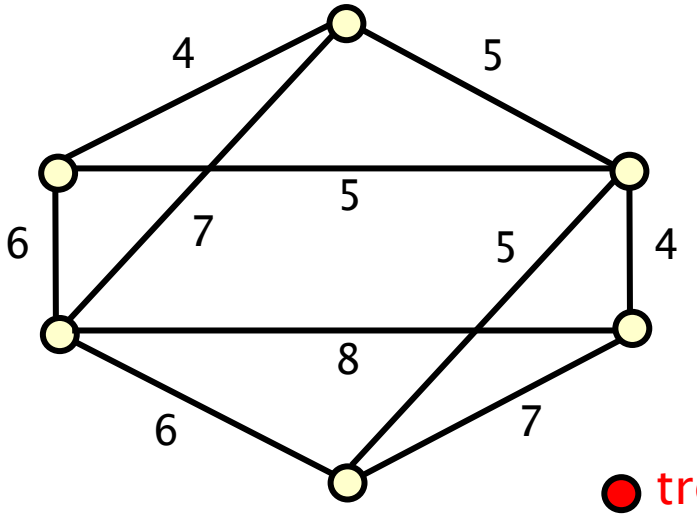


make y a tree vertex

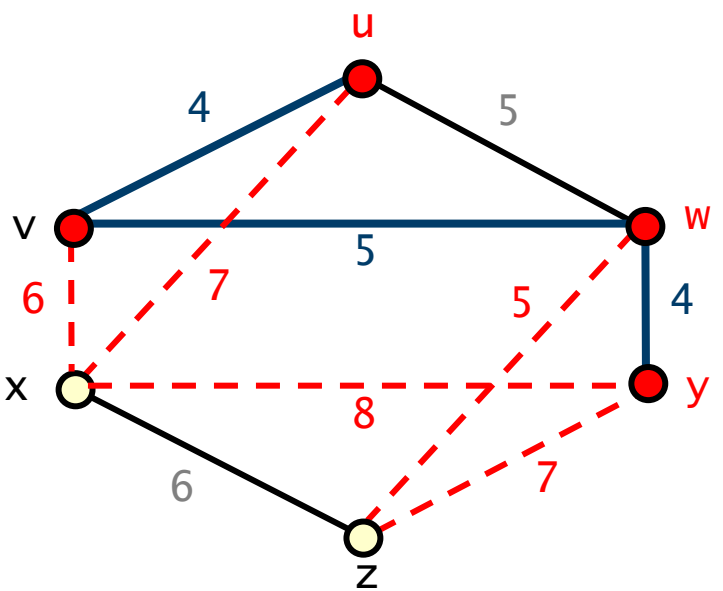
& add edge to the tree

The Prim–Jarnik algorithm – Example

Weighted graph G



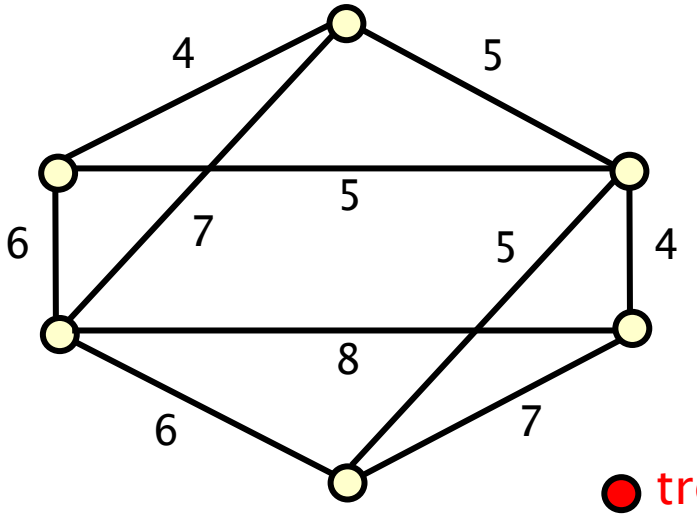
tree vertices: u, v, w, y
non-tree vertices: x, z



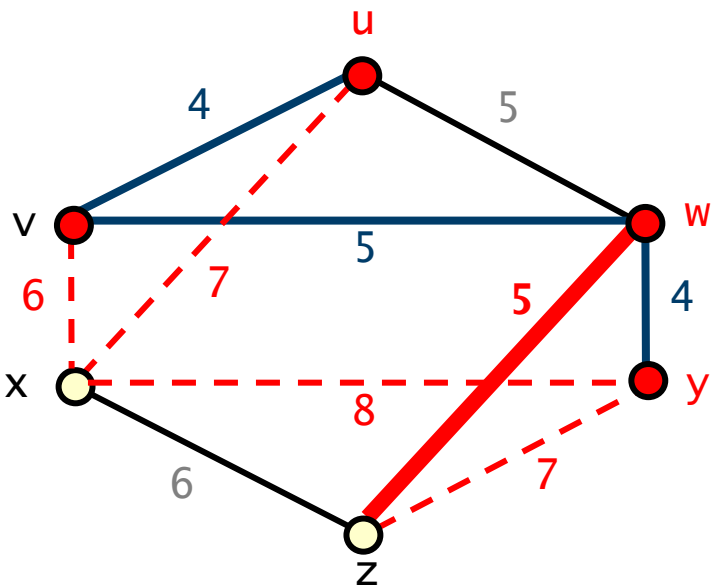
consider all tree vertex and non-tree vertex edges

The Prim–Jarnik algorithm – Example

Weighted graph **G**



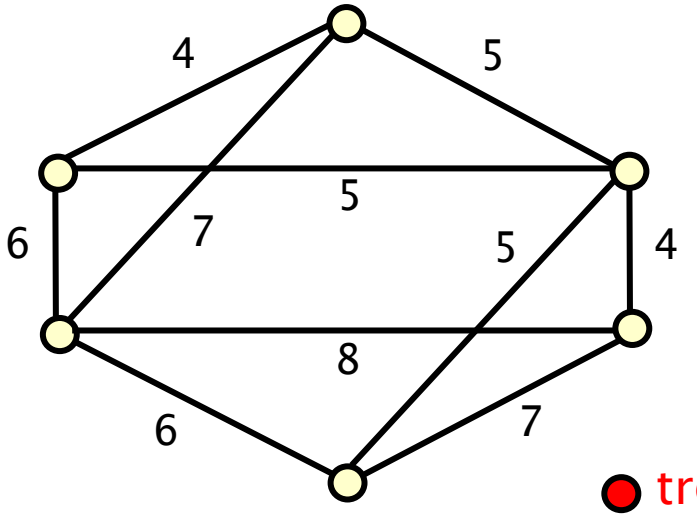
tree vertices: u, v, w, y
non-tree vertices: x, z



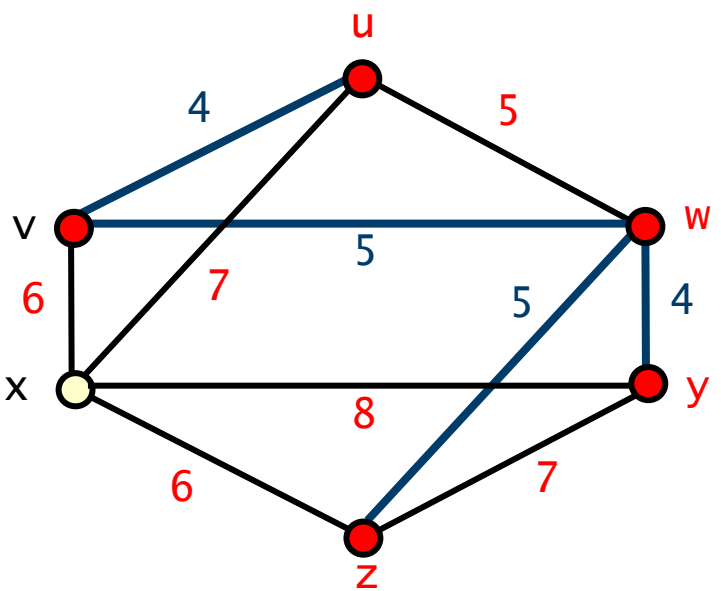
minimum such edge is {w, z}

The Prim–Jarnik algorithm – Example

Weighted graph **G**



tree vertices: u, v, w, y, z
non-tree vertices: x

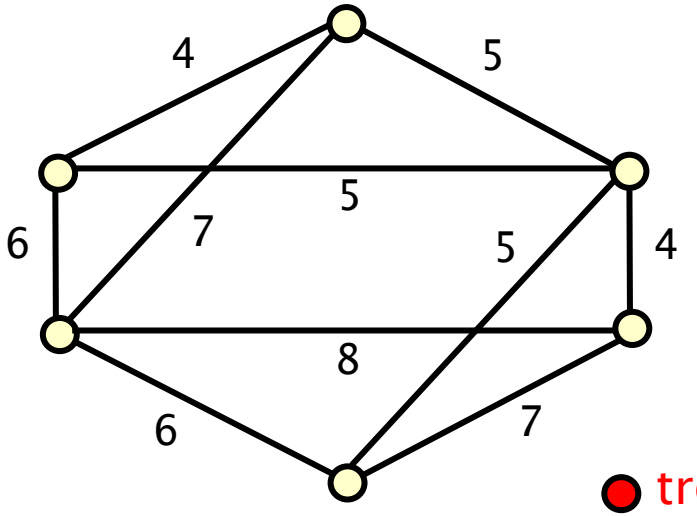


make z a tree vertex

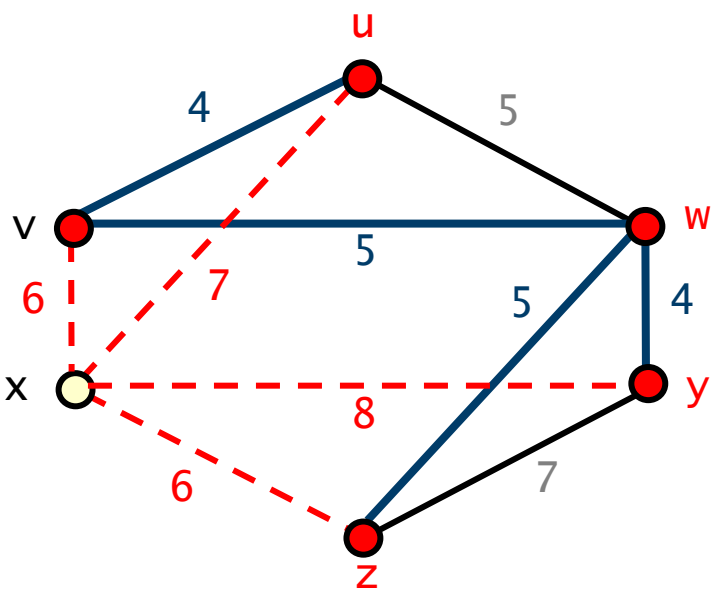
& add edge to the tree

The Prim–Jarnik algorithm – Example

Weighted graph **G**



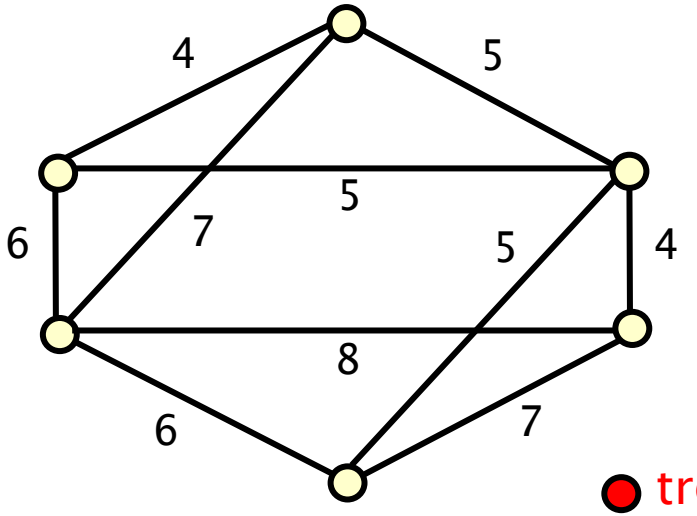
tree vertices: u, v, w, y, z
non-tree vertices: x



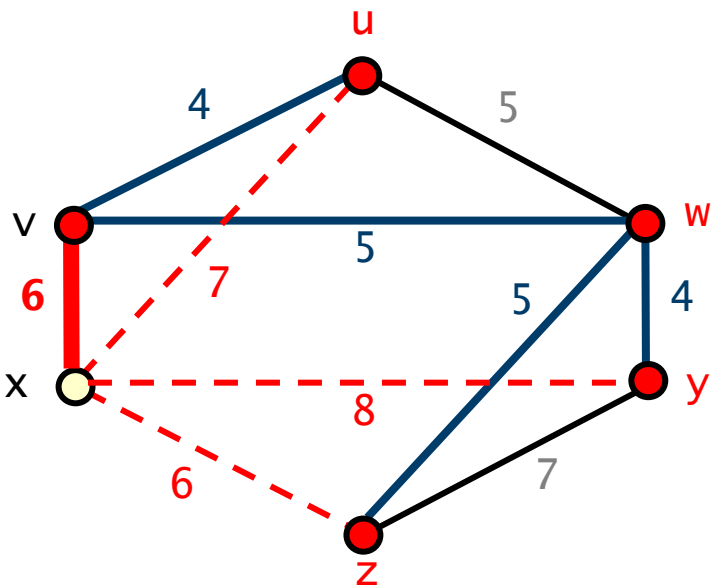
consider all tree vertex and non-tree vertex edges

The Prim–Jarnik algorithm – Example

Weighted graph **G**



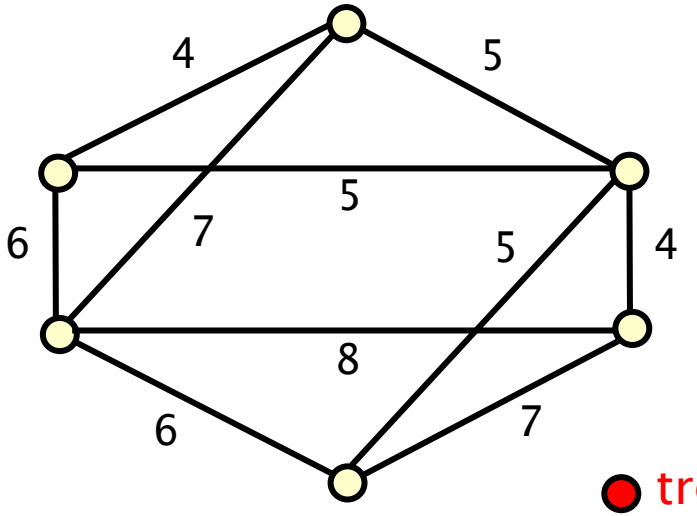
tree vertices: u, v, w, y, z
non-tree vertices: x



minimum such edge is {x, v}

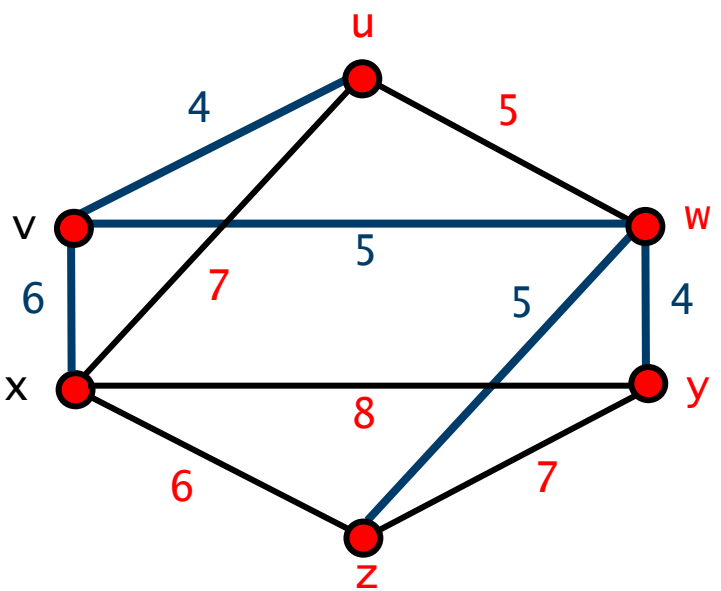
The Prim–Jarnik algorithm – Example

Weighted graph **G**



tree vertices: u, v, w, x, y, z

non-tree vertices:

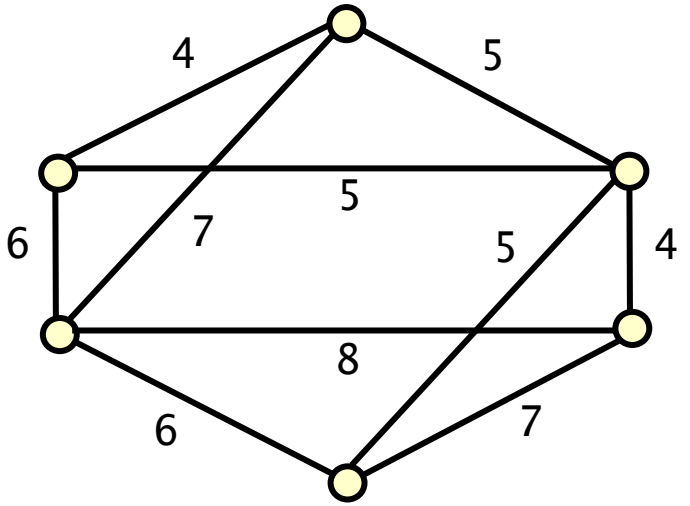


make x a tree vertex

& add edge to the tree

The Prim–Jarnik algorithm – Example

Weighted graph G



Minimum spanning tree for G

- weight 24