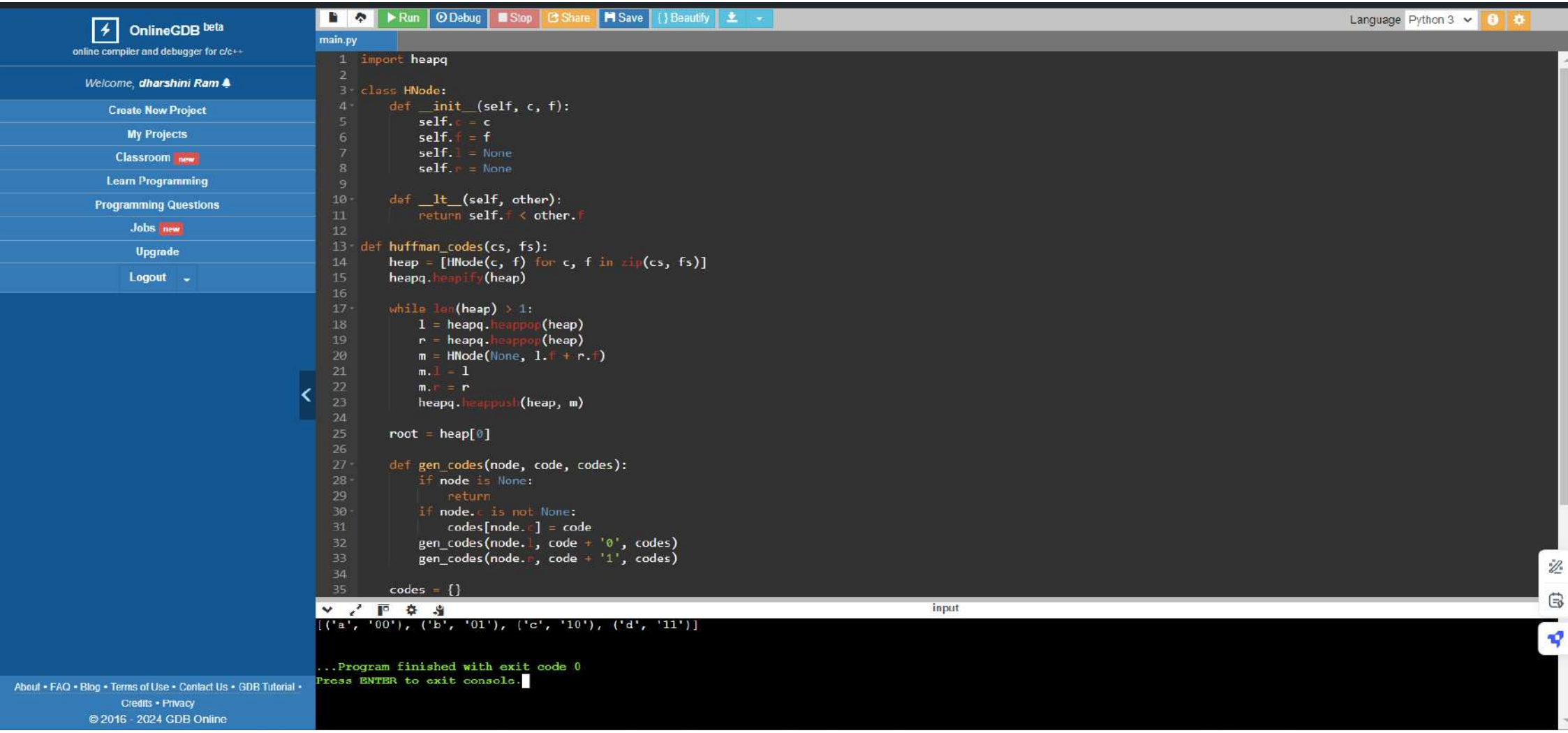
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{} Beautify
Language Python 3
main.py
import heapq
class HNode:
def __init__(self, c, f):
self.c = c
self.f = f
self.l = None
self.r = None
def __lt__(self, other):
return self.f < other.f
def huffman_codes(cs, fs):
heap = [HNode(c, f) for c, f in zip(cs, fs)]
heapq.heapify(heap)
while len(heap) > 1:
l = heapq.heappop(heap)
r = heapq.heappop(heap)
m = HNode(None, l.f + r.f)
m.l = l
m.r = r
heapq.heappush(heap, m)
root = heap[0]
def gen_codes(node, code, codes):
if node is None:
return
if node.c is not None:
codes[node.c] = code
gen_codes(node.l, code + '0', codes)
gen_codes(node.r, code + '1', codes)
codes = {}
input
[('a', '00'), ('b', '01'), ('c', '10'), ('d', '11')]
...Program finished with exit code 0
Press ENTER to exit console.
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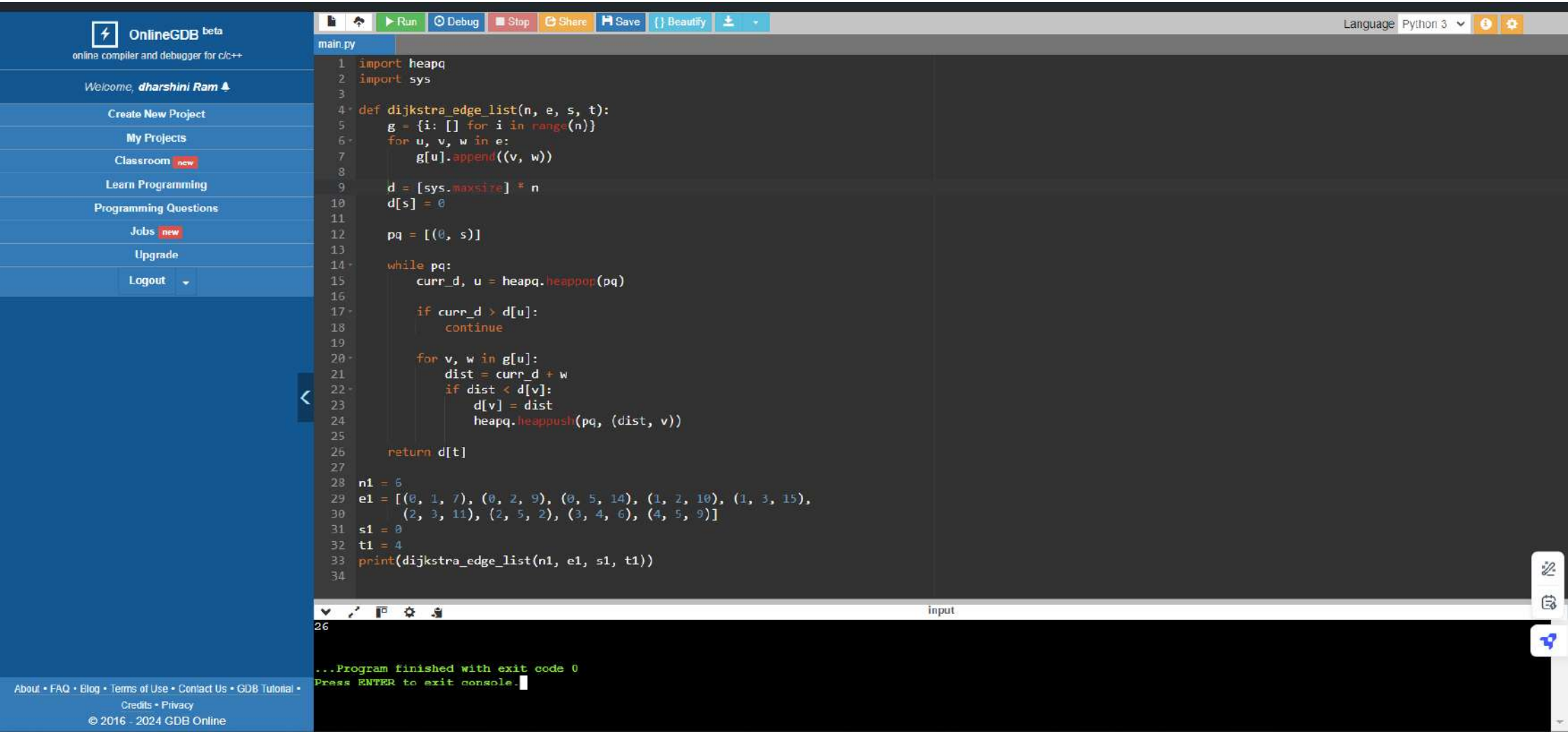
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Debug
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Language Python 3
main.py
import heapq
import sys
def dijkstra_edge_list(n, e, s, t):
g = {i: [] for i in range(n)}
for u, v, w in e:
g[u].append((v, w))
d = [sys.maxsize] * n
d[s] = 0
pq = [(0, s)]
while pq:
curr_d, u = heapq.heappop(pq)
if curr_d > d[u]:
continue
for v, w in g[u]:
dist = curr_d + w
if dist < d[v]:
d[v] = dist
heapq.heappush(pq, (dist, v))
return d[t]
n1 = 6
e1 = [(0, 1, 7), (0, 2, 9), (0, 5, 14), (1, 2, 10), (1, 3, 15),
(2, 3, 11), (2, 5, 2), (3, 4, 6), (4, 5, 9)]
s1 = 0
t1 = 4
print(dijkstra_edge_list(n1, e1, s1, t1))
input
26
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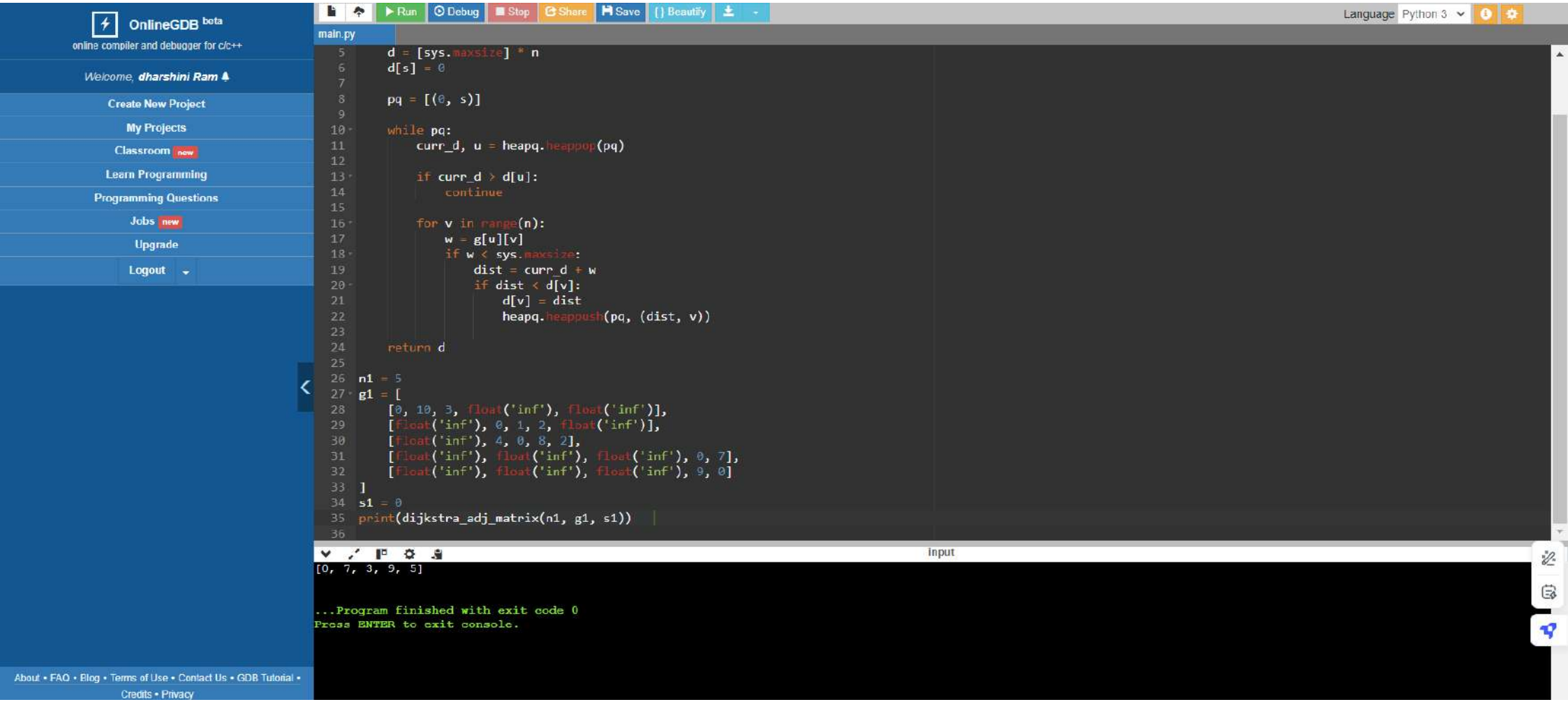
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Language Python 3
main.py
d = [sys.maxsize] * n
d[s] = 0
pq = [(0, s)]
while pq:
curr_d, u = heapq.heappop(pq)
if curr_d > d[u]:
continue
for v in range(n):
w = g[u][v]
if w < sys.maxsize:
dist = curr_d + w
if dist < d[v]:
d[v] = dist
heapq.heappush(pq, (dist, v))
return d
n1 = 5
g1 = [
[0, 10, 3, float('inf'), float('inf')],
[float('inf'), 0, 1, 2, float('inf')],
[float('inf'), 4, 0, 8, 2],
[float('inf'), float('inf'), float('inf'), 0, 7],
[float('inf'), float('inf'), float('inf'), 9, 0]
]
s1 = 0
print(dijkstra_adj_matrix(n1, g1, s1))
input
[0, 7, 3, 9, 5]
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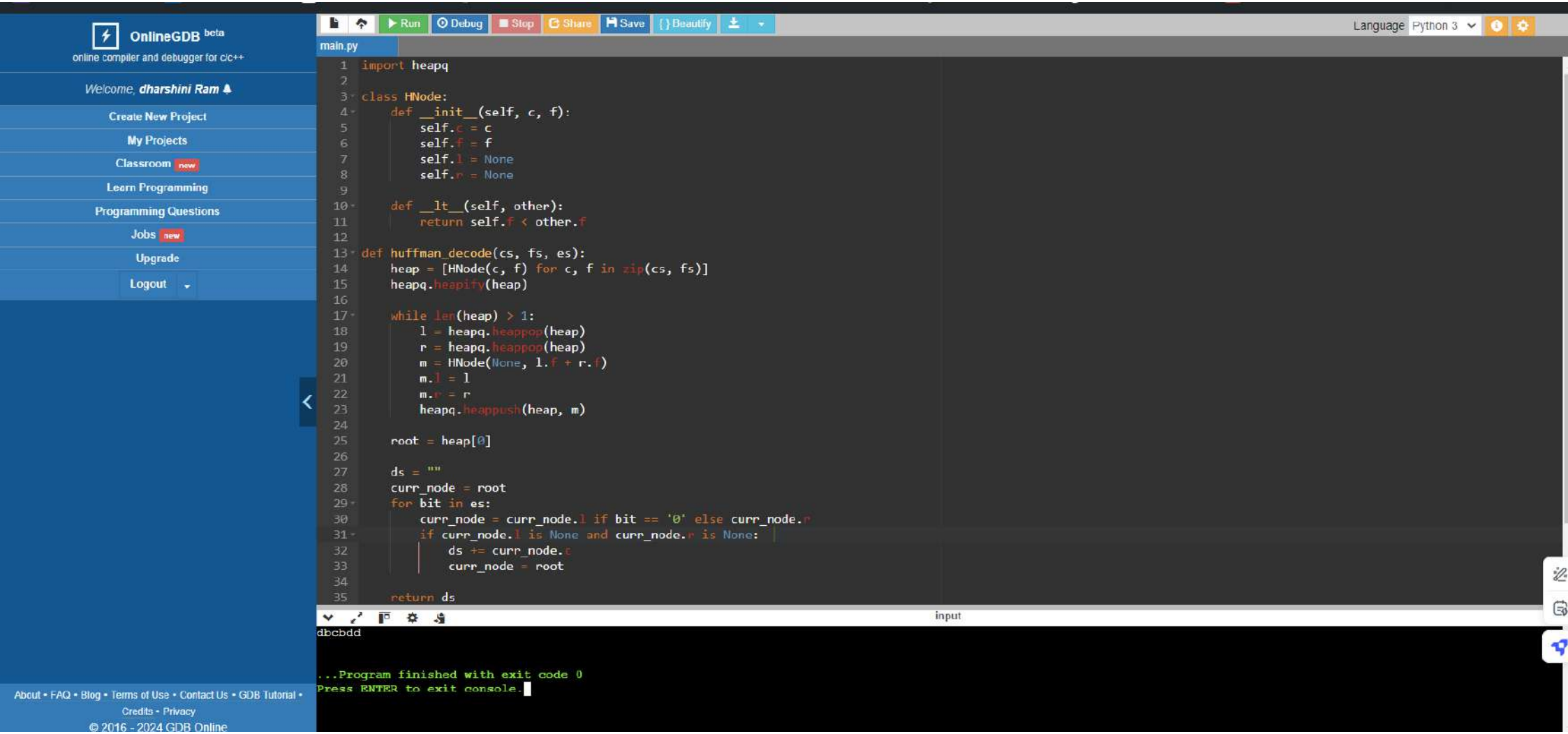
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Run
Debug
Stop
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def __init__(self, c, f):
self.c = c
self.f = f
self.l = None
self.r = None
def __lt__(self, other):
return self.f < other.f
def huffman_decode(cs, fs, es):
heap = [HNode(c, f) for c, f in zip(cs, fs)]
heapq.heapify(heap)
while len(heap) > 1:
l = heapq.heappop(heap)
r = heapq.heappop(heap)
m = HNode(None, l.f + r.f)
m.l = l
m.r = r
heapq.heappush(heap, m)
root = heap[0]
ds = ""
curr_node = root
for bit in es:
curr_node = curr_node.l if bit == '0' else curr_node.r
if curr_node.l is None and curr_node.r is None:
ds += curr_node.c
curr_node = root
return ds
input
dbcbdd
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