







LZ78_compression (Calls: 1, Time: 96.962 s)

Generated 20-May-2021 13:33:24 using performance time.
Function in file [D:\Matlab\ITC_project\LZ78_compression.m](#)
[Copy to new window for comparing multiple runs](#)



Parents (calling functions)

Function Name	Function Type	Calls
Final_with_comp	Script	1

Lines that take the most time

Line Number	Code	Calls	Total Time (s)	% Time	Time Plot
15	<code>f = find(dict == z, 1);</code>	405195	69.539	71.7%	
29	<code>L(i) = find(dict==string(c(1:end-1)));</code>	53945	11.607	12.0%	
22	<code>y(1:k)=[];</code>	54018	10.133	10.5%	
14	<code>z = string(y(1:J));</code>	405195	2.729	2.8%	
50	<code>p(i) = string(dec2bin(L(i),sb(i)));</code>	54018	0.736	0.8%	
All other lines			2.218	2.3%	
Totals			96.962	100%	

Children (called functions)

Function Name	Function Type	Calls	Total Time (s)	% Time	Time Plot
dec2bin	Function	54020	0.531	0.5%	
strjoin	Function	1	0.011	0.0%	
Self time (built-ins, overhead, etc.)			96.420	99.4%	
Totals			96.962	100%	

Code Analyzer results

Line Number	Message
28	The variable 'S' appears to change size on every loop iteration. Consider preallocating for...
29	The variable 'L' appears to change size on every loop iteration. Consider preallocating for...
31	The variable 'S' appears to change size on every loop iteration. Consider preallocating for...
32	The variable 'L' appears to change size on every loop iteration. Consider preallocating for...
43	The value assigned to variable 'dict' might be unused.
57	The variable 'txt' appears to change size on every loop iteration. Consider preallocating f...

Coverage results

Function listing

Time	Calls	Line	
		1	function txt = LZ78_compression(input_text_filename, compressed_txt_filename)
		2	
< 0.001	1	3	fid = fopen(input_text_filename,'r');
0.006	1	4	x = char(fread(fid)');
< 0.001	1	5	fclose(fid);
		6	
< 0.001	1	7	y=x;
		8	
< 0.001	1	9	dict = "";

< 0.001	1	<u>10</u>	i=0; J=1;
< 0.001	1	<u>11</u>	while ~isempty(y)
0.040	405195	<u>12</u>	if J>size(y,2); break; end
		13	
2.729	405195	<u>14</u>	z = string(y(1:J));
69.539	405195	<u>15</u>	f = find(dict == z, 1);
		16	
0.406	405195	<u>17</u>	if isempty(dict) isempty(f)
0.100	54018	<u>18</u>	c = char(z);
0.008	54018	<u>19</u>	k = size(c,2);
		20	
0.014	54018	<u>21</u>	k = (k==1) + (k~=1)*(k);
10.133	54018	<u>22</u>	y(1:k)=[];
		23	
0.008	54018	<u>24</u>	J=1; i=i+1;
0.510	54018	<u>25</u>	dict(i) = z;
		26	
0.007	54018	<u>27</u>	if size(c,2)>1
0.302	53945	<u>28</u>	S(i) = string(c(end));
11.607	53945	<u>29</u>	L(i) = find(dict==string(c(1:end-1)));
< 0.001	73	<u>30</u>	else
0.001	73	<u>31</u>	S(i) = string(c(end));
< 0.001	73	<u>32</u>	L(i) = 0;
0.008	54018	<u>33</u>	end
		34	
0.031	351177	<u>35</u>	else
0.033	351177	<u>36</u>	J = J + 1;
0.027	405195	<u>37</u>	end
0.045	405195	<u>38</u>	end
		39	
< 0.001	1	<u>40</u>	if ~isempty(y)
		41	S(end+1) = "";
		42	L(end+1) = find(dict==string(y));
		43	dict(end+1) = "";
< 0.001	1	<u>44</u>	end
		45	
0.002	1	<u>46</u>	sb = floor(log2(0:size(L,2)-1))+1; sb(sb<0)=1;
0.010	1	<u>47</u>	p = string(zeros(1,size(sb,2)));
		48	
< 0.001	1	<u>49</u>	for i = 1:size(L,2)
0.736	54018	<u>50</u>	p(i) = string(dec2bin(L(i),sb(i)));
0.003	54018	<u>51</u>	end
		52	
0.042	1	<u>53</u>	acmsg = char(strjoin(p+string(dec2bin(char(S),8))',''));;
< 0.001	1	<u>54</u>	acmsg = [dec2bin(size(L,2),32) acmsg];
		55	
< 0.001	1	<u>56</u>	for i = 1:(floor(length(acmsg)/8))
0.386	153866	<u>57</u>	txt(i) = string(acmsg(8*(i-1) + 1 : 8*i));
0.007	153866	<u>58</u>	end
		59	
0.198	1	<u>60</u>	txt = char(bin2dec(txt));
		61	
		62	% Compression Ratio
< 0.001	1	<u>63</u>	CR = (size(x,2)*8) / ((length(S) - sum(S=="")) *8 + sum(sb));
< 0.001	1	<u>64</u>	fprintf("\nCompression Ratio : %f\n",CR);
		65	
0.004	1	<u>66</u>	fid = fopen(compressed_txt_filename,'w');
0.001	1	<u>67</u>	fwrite(fid, txt);
< 0.001	1	<u>68</u>	fclose(fid);

0.014

1

70end
