\*3rd program\*

Assignment 3:

#include <stdio.h>

#include <stdlib.h>

#include <string.h>

/\* A function that prints given number in words \*/

Void convert\_to\_words(char\* num)

{

Int len = strlen(

Num); // Get number of digits in given number

/\* Base cases \*/

If (len == 0) {

Fprintf(stderr, “empty string\n”);

Return;

}

If (len > 4) {

Fprintf(stderr,

“Length more than 4 is not supported\n”);

Return;

}

/\* The first string is not used, it is to make

Array indexing simple \*/

Char\* single\_digits[]

= { “zero”, “one”, “two”, “three”, “four”,

“five”, “six”, “seven”, “eight”, “nine” };

/\* The first string is not used, it is to make

Array indexing simple \*/

Char\* two\_digits[]

= { “”, “ten”, “eleven”, “twelve”,

“thirteen”, “fourteen”, “fifteen”, “sixteen”,

“seventeen”, “eighteen”, “nineteen” };

/\* The first two string are not used, they are to make

Array indexing simple\*/

Char\* tens\_multiple[] = { “”, “”, “twenty”,

“thirty”, “forty”, “fifty”,

“sixty”, “seventy”, “eighty”,

“ninety” };

Char\* tens\_power[] = { “hundred”, “thousand” };

/\* Used for debugging purpose only \*/

Printf(“\n%s: “, num);

/\* For single digit number \*/

If (len == 1) {

Printf(“%s\n”, single\_digits[\*num – ‘0’]);

Return;

}

/\* Iterate while num is not ‘\0’ \*/

While (\*num != ‘\0’) {

/\* Code path for first 2 digits \*/

If (len >= 3) {

If (\*num – ‘0’ != 0) {

Printf(“%s “, single\_digits[\*num – ‘0’]);

Printf(“%s “,

Tens\_power[len – 3]); // here len can

// be 3 or 4

}

--len;

}

/\* Code path for last 2 digits \*/

Else {

/\* Need to explicitly handle 10-19. Sum of the

Two digits is used as index of “two\_digits”

Array of strings \*/

If (\*num == ‘1’) {

Int sum = \*num – ‘0’ + \*(num + 1) – ‘0’;

Printf(“%s\n”, two\_digits[sum]);

Return;

}

/\* Need to explicitely handle 20 \*/

Else if (\*num == ‘2’ && \*(num + 1) == ‘0’) {

Printf(“twenty\n”);

Return;

}

/\* Rest of the two digit numbers i.e., 21 to 99

\*/

Else {

Int I = \*num – ‘0’;

Printf(“%s “, I ? tens\_multiple[i] : “”);

++num;

If (\*num != ‘0’)

Printf(“%s “,

Single\_digits[\*num – ‘0’]);

}

}

++num;

}

}

/\* Driver program to test above function \*/

Int main(void)

{

Convert\_to\_words(“9923”);

Convert\_to\_words(“523”);

Convert\_to\_words(“89”);

Convert\_to\_words(“8”);

Return 0;

}

\*\*OUTPUT\*\*

9923: nine thousand nine hundred twenty three

523: five hundred twenty three

89: eighty nine

8: eight

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