

Worksheet 3

Instructions

- 1) Use only MARS simulator for MIPS32 programming in the lab.
- 3) Save your programs in a separate folder with .asm extension and delete it from the system after the final evaluation is done.
- 4) Show the working programs to the TAs available before submitting your word file at blackboard.
- 5) Any doubts should be clarified with the TAs available in labs

Questions:

1. Write a MIPS assembly language program to perform left shifting on an integer. The integer and the number of bits to be shifted will be provided by the user as input.
2. Write a MIPS assembly language program to print following given patterns of *. Take input (like number of rows to be printed) from the user.

<p>(i)</p> <pre>* ** *** **** ***** ***** ***** ***** ***** ***** *****</pre>	<p>(ii)</p> <pre>***** ***** ***** ***** ***** ***** *****</pre>
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3. Write a MIPS assembly language program to print the sum of two integers, difference and product of two

integers (to be taken by the user as input) by using different functions (Procedures) for all three arithmetic operations. The sequence of the functions to be written in your code is given below.

funcADD

funcMUL

funcSUB

Desired output-

Product of two numbers is _____

Sum of the two numbers is _____

Difference of two numbers is _____

4. Write a MIPS assembly language program to convert a user given integer to a binary number. Consider both, the positive and negative integers. In case of a negative integer, the output has to be in 2's complement form. Print the binary number as string.
5. In India, We have all adults vote to elect their representatives irrespective of their caste, religion, race, gender, place of birth, or economic status. We call this Universal Adult Franchise. It states that every individual has one vote. Write an MIPS assembly language program to print the voting criteria for an individual as per the conditions given below:
 - If age < 18 the person is not allowed to vote,
 - If age >=18 AND person doesn't have voter id card, then he/she can't vote
 - If age >=18 AND person has voter id card, then he/she can vote.
6. Write a MIPS assembly language program to check whether the given string is a palindrome or not.