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| \vee | | SYLLABUS | | | , k | |
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| - | 1. | Internalizations L. Comp. | | | | |
| | | Interoduction to computing | | | | |
| | 2. | C-language - | | | | |
| | 3. | Asvicus and Sterings | | | | |
| | 4. | Modular Programming and advanced data types in C | Recur | sion. | | |
| | 5. | Advanced data tunes in C | | | | |
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Introduction to Computing

PROBLEM SOLVING

Problem solving is the sequential process of analyzing information releited to a given situation and generating appropriate susponses

Define the problem -> Develop a plan

Evaluate - Implement Plan

WHAT IS A PROBLEM ? - constant of maining

- · A problem is a puzzle that requires logical thought
- A puryle could be a set of questions on a scenario, which consists of description of reality and set of constraints about the scenario.

Fundamental, requirement joer solving -> Logic.

LOGIC

Logic is a longuage of recisoning of method of human thought that involves thinking in a linear step by Mep manner to solve the problem.

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| | |
| | IMPORTANCE OF LOGIC IN PROBLEM COLVING |
| | Solution for any moblem requires: 3 things. |
| | · Input |
| 0 | · Process |
| | ybe process part requires logic ie based on the |
| 25/50 | logic process is developed. |
| | There may be multiple logics for the same |
| | There may be multiple logics for the same problem. Some maybe simple and some are complex |
| | BROAD APPLICATIONS OF COMPUTATIONAL PROBLEM. |
| | C St O III S C Maria de la companya del companya de la companya del companya de la companya de l |
| <u>-</u> | Decision Pto Problem - Yes on No |
| · Harri | Searching and sorting problem. |
| 1001 | Ophimization Problem - Find best solution from Jeanible |
| . 15 | no emidance to the solutions of the |
| alite | temasio which commists of description of a |
| o ci | CLASSIFICATION OF COMPUTATIONAL PROBLEMS |
| - 1-1-C | Concuevient - Operations overlap in some |
| • | Sequential - Oprations are done step-by step |
| • | Distributed - Performed at different locations |
| • | Event Based - Based on input of the user. |
| \ | Topic is a sarguage of reversing the second |
| 2 5 | of human it ought have anyour diseases |
| dense | Linear stepty sty wanter is some in |
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| | | | | |
| | COMPUTER ORGAN | IZATION | Perimoneus Alos | |
| | | | 7 | |
| | die diese na Baut paux | CPU | -> OUTPUT D | EVICE |
| | INPUT DEVICE -> | ALU | | |
| | | | MENGER-LIN | |
| | and in problems in | UNIT | Trace worm | |
| Admil) | a recomply progress | 1 1 | | STORAGE |
| | 1 it food to the CEV | PRIMARY | DEVICE | |
| | Buy how of you may | STORAGE | and these | |
| 1 | wife pose a competition | | | |
| | CENTRAL PROCESSIN | GUNUNIT IN G | mausica | |
| 1 | | | dyses | |
| + | · Dala and instruction | ms are proc | essed in the C | 0. |
| | It has two parts - | ALU | ALL KANMEN IIA | |
| - | | Control Uni | <i>t</i> . | |
| - | teurbons and date un | it where ima | тел гронозг | |
| - | ARITHMETICAL AND | LOGICAL UN | ofseed TI | ,907 |
| de | other ages calls carls car | 12 3200 11 16 14 | to continued | - |
| | Performs arithmet | ic and logica | l functions | |
| | Example +,-,/ | and logical | functions like | OR NOT |
| 45 64 | ut date computed sole | gri ed one | AN | D, XOR JE |
| | CONTROL UNIT | icat xurinas. | program | |
| | | | | |
| bón | Controls the order | in which in | structions are | e |
| | executed | | Mesen | |
| | FUNCTIONS OF CU. | Informa deg | a but is a | |
| | · Fetchis data an | | | memory |
| | · Intemprets these | | 3.5 | <i>-</i> |
| o suching | · controls the tru | | | uchions |
| | to and secon ma | | | |
| | · Controls 10 a |) | | |
| | · Overall super | | nuter sustem | o , |
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| | Primary storage - Para nisides only if power is |
|----------|--|
| Japiva | Auxiliary storage - Data exides even without power eg, HDP, SSD |
| | MEMORY DNIT (DIFFICE) |
| | Program (human level) and its machine level |
| PARELS A | TACHAUA A A A A A A A A A A A A A A A A A A |
| | When it is exer launched it goes to the CPU (CU-)AU |
| | and there it gets executed while accepting |
| | imputs to from the imput device and afres |
| | execution it is outputed via the Output |
| | device. |
| 1913. | : Pata and instructions are procured to the C |
| | MEMORY UNIT UIA - strong out road to. |
| | Contant limit. |
| | |
| | Storage unit where instructions and data are |
| | An ordered towers of stores - all - a |
| | An ordered sequence of storage cells, each capable |
| 4 20 35 | of holding a piece of information. |
| IND, XOF | Each all pas a unique address |
| | The impo can be imput data, computed values of |
| | program instructions. The last has |
| | |
| 270 | Memory is measured in terms of bits bytes and |
| | 125/103/25 |
| - 2 | 1 bit is a binary digit (0 or 1) |
| 1113111 | tigle is unit of memory, (a Lite |
| | The word can be defined as a sequence of |
| Welsehor | 6/32/64 bits ii 21/6/ |
| | 6/32/64 bits in 2/4/8 bytes, varies according |
| | of the warmicane. |
| | · Conserver 1th about the |
| 7 71. | Compared Supervision of Compared Compar |
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| | | | | | _ |
| | 1 | MAIN MEMORY DOWN SURGEON A | Wor velut | | |
| | | Cargo arocum's a data | | | |
| | | Memory where data and instruct | | | |
| _ | | leing executed is somed | | | |
| | | · docated outside CPU | Y | | |
| | | · High Speed Kaomin | 4 1F65A.5 | | |
| | | · Temporary (data is erased | with loss | of power | ח |
| النا | ,name | deso referred as primary / temporary | memory | 8/0 | |
| | 1-1000 | · Semi conductor memory, | diena d | . 1 | |
| | | · Measured in MB/GB | Marce Co | | |
| | | was a file manney | | | |
| | | PRIMARY STORAGE: RAM AND ROM | | | |
| | | CORE IN | | | |
| | | RAM - Random Access Memory. | | | |
| | | · Read and Write Memory | | | |
| | | - Information typed by the user | is storec | I here. | |
| | | · Any location can be accessed d | | | |
| | | scanning sequentially. | | | |
| 1 | 1:15 | It is temporary / volable memos | y o | | |
| _ | | the Pl epenabbands and helps execute | | | |
| 1 | | ROM - Read Only Memory | | | |
| 1 | | · Permanent, non volatile memory | | | |
| 1 | | · Contents in ROM cannot be chan | | | |
| | | · mainly stories basic 10 progen | • | | |
| | | J , , , , , , , , , , , , , , , , , , , | U | | |
| _ | | SECONDARY MEMBRY | 709 400 | | |
| _ | | | | | |
| 1 | bord | Main memory is limited and volut | steanon | | |
| _ | | Secondary memory is larger and a | | | |
| _ | | and various programs | | | |
| _ | | in the constitution of the | | | |
| _ | | the state of the state of the state of | . 4 | | |
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| | | | |
| | · Non volatile | s wialw | |
| | · Non volatile material. · Made up of magnetic memo. | | |
| | 10100 XOUGE WITHOUT | 1340 per 3 M | |
| 6340 | descent considerations | Lina | |
| | Holds programs not being executed. | , | |
| | to also outside (PU) | 6 | |
| | CACHE MEMORY | , | |
| The same | seal alter prome or estably housed the | d mum | Coo |
| | high speed memory between CPU and | de la | Memory |
| • | Stores data and instructions aurount | y w | executed |
| • | More Costlier, but less capacity | | |
| | Users cannot acces this memory. | | |
| | STORAGE: RAMIAND ROM | PERMAR | |
| | CORE | R | |
| | cache cache | MIAS | 5 |
| | 0 | 1371 | |
| non | Jesus of users of the core to account | at . | |
| A show | OPERATING WAS YETE MIN MODE MONTH ! | Up. | |
| | - Braushas Eurow | _ | |
| • | Os is an integral collection of pri | grams. | which |
| | make the PC operational and help | execute | program |
| 4 | An interface between man and me | achine | |
| - | It manages the system resources. | like mer | nory |
| | 10, processos etcosos Mas as stadio | . Co. | 07 |
| | eg Wandows Linux, DOS, Macos | J-1 . | |
| | | | |
| | COMPUTER LANGUAGES MAIN VAL | 6ECANID | |
| | · | | |
| • | Machine language - Consists of o | neu D's | and 19'5 |
| co to | Symbolic language on Anembly langu | u a a a a | |
| | - symbols used to supresent instr | uge. | |
| | · hardware specific | W (1)OPS | |
| | eg MASM; ADDX, Y; add x boy | | |
| | J Hard K 80 4 | - | |

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| 1 | | High - day of the same of the | in. |
| 1 | | High-devel languages - English-like programme languages. | |
| | | eg c, c++, c# etc. | im. |
| | | | |
| + | | LANGUAGE TRANSLATOR. | |
| \downarrow | | Compiler: Program that termslates high-level to | |
| y | 1 | Compiler: Program that termslates high-level to machine language. Ly C, C++ Centine pro | grama |
| + | • | Interpreters: Program which translates one-statement at a time. | nent |
| - | | eg Basic Interpreters, Java Interpreters. | |
| | • | Assembler: Program which translates assembly | |
| - | | language to machine language | |
| | | eg. TASM (Turbo ASseMbler), MASM. | |
| | | TYPICAL C DEVELOPMENT ENVIRONMENT | |
| | | Editon DISK | |
| | | Preprocesson & BISK | |
| | | Compiler ↔ DISK | |
| | | Linker | |
| | | Loader -> Primary Mimory. | |
| | | CPU - Primary Memory | |
| | | | |
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