

CSA-5761

FUNDAMENTALS OF COMPUTING FOR DATA DEVELOPMENT

SHELL PROGRAM

SQUARE:

The screenshot displays the OnlineGDB web interface in a browser. The browser's address bar shows the URL `onlinegdb.com/edit/KjpobjvxD`. The OnlineGDB logo and navigation menu are on the left. The main editor area shows a Bash script in a file named `main.bash`. The script prompts the user to enter a number, reads it, calculates its square, and prints the result. The script is as follows:

```
1  
2 #!/bin/sh  
3 echo "enter a number"  
4 read a  
5 square=$((a*a))  
6 echo "square of "$a="$square  
7
```

Below the editor, there is an input field labeled "input". The Windows taskbar is visible at the bottom of the screen, showing the time as 02:17 PM on 13-02-2023.

WhatsApp

shell1 - GDB online Debugger | Cod

+

← → ↻

onlinegdb.com/edit/KjpobjvxD

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shell1

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Language Bash

main.bash

```
1
2 #!/bin/sh
3 echo "enter a number"
4 read a
```

input

enter a number
4
square of 4=16

...Program finished with exit code 0
Press ENTER to exit console.

88°F
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ENG IN 02:17 PM
13-02-2023

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onlinegdb.com/edit/g3z2iZDNB

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Language Bash ⌵ ⓘ ⚙️


main.bash


```
1 #!/bin/sh
2 echo "enter a number"
3 read a
4 cube=$((a*a*a))
5 echo "cube of"$a="$cube"
6
7
```


input

```
enter a number
4
cube of4=64

...Program finished with exit code 0
onsole.
```

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02:17 PM
13-02-2023

1

AREA OF RECTANGLE:

The screenshot displays the OnlineGDB web interface in a browser. The browser's address bar shows the URL `onlinegdb.com/edit/PRlvXXb9Qb`. The OnlineGDB logo and navigation menu are on the left. The main editor area shows a Bash script for calculating the area of a rectangle. The script is as follows:

```
main.bash
1  #!/bin/sh
2  echo "enter length"
3  read l
4  echo "enter base"
5  read b
6  area=$((l*b))
7  echo "area of rectangle"=$area
8
```

Below the editor, there is an input field labeled "input". The Windows taskbar is visible at the bottom of the screen, showing the time as 02:19 PM on 13-02-2023.

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onlinegdb.com/edit/PRlvXXb9Qb

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Language Bash

main.bash

```
1 #!/bin/sh
2 echo "enter length"
3 read l
4 echo "enter base"
```

input

```
enter length
4
enter base
5
area of rectangle=5

...Program finished with exit code 0
Press ENTER to exit console.
```

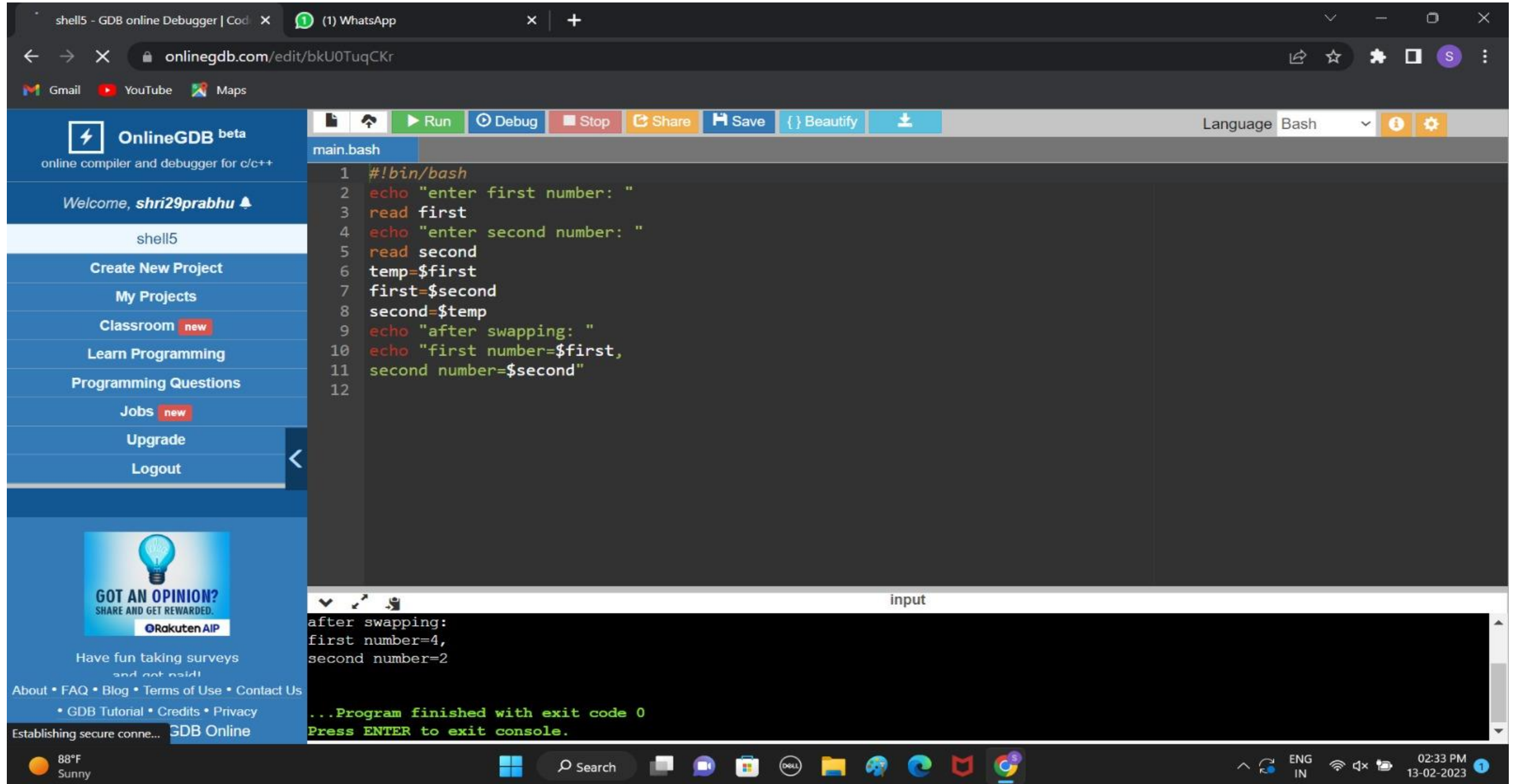
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AFTER SWAPPING:



The screenshot displays the OnlineGDB web interface in a browser window. The browser's address bar shows the URL `onlinegdb.com/edit/bkU0TuqCKr`. The interface includes a sidebar on the left with navigation links such as "Create New Project", "My Projects", "Classroom", "Learn Programming", "Programming Questions", "Jobs", "Upgrade", and "Logout". The main editor area contains a Bash script named `main.bash` with the following code:

```
1 #!/bin/bash
2 echo "enter first number: "
3 read first
4 echo "enter second number: "
5 read second
6 temp=$first
7 first=$second
8 second=$temp
9 echo "after swapping: "
10 echo "first number=$first,"
11 echo "second number=$second"
12
```

Below the editor, the "input" section shows the output of the script:

```
after swapping:
first number=4,
second number=2

...Program finished with exit code 0
Press ENTER to exit console.
```

The bottom of the image shows a Windows taskbar with the system clock indicating 02:33 PM on 13-02-2023.

shell5 - GDB online Debugger | Cod... (1) WhatsApp

onlinegdb.com/edit/bkU0TuqCKr

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Language Bash

main.bash

```
1 #!/bin/bash
2 echo "enter first number: "
3 read first
4 echo "enter second number: "
```

input

```
enter first number:
2
enter second number:
4
after swapping:
first number=4,
second number=2

...Program finished with exit code 0
Press ENTER to exit console.
```

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LARGEST NUMBER:

The screenshot displays the OnlineGDB web interface in a browser. The browser's address bar shows the URL `onlinegdb.com/edit/efRJ0uwMB`. The interface includes a sidebar on the left with navigation links such as "Create New Project", "My Projects", "Classroom", "Learn Programming", "Programming Questions", "Jobs", "Upgrade", and "Logout". The main editor area contains a Bash script named `main.bash` with the following code:

```
1 #!/bin/bash
2 echo "enter three numbers: "
3 read a
4 read b
5 read c
6 if [ $a -gt $b ] && [ $a -gt $c ]
7 then
8 echo "$a is largest number"
9 elif [ $b -gt $a ] && [ $a -gt $c ]
10 then
11 echo "$b is largest number"
12 else
13 echo "$c is largest number"
14 fi
15
16
```

Below the editor, the "input" section shows the execution output:

```
main.bash: line 6: [: missing `]'
main.bash: line 9: [: missing `]'
7 is largest number

...Program finished with exit code 0
Press ENTER to exit console.
```

The bottom of the image shows a Windows taskbar with the date and time "02:34 PM 13-02-2023" and the system status "88°F Sunny".

shell6 - GDB online Debugger | Codex

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onlinegdb.com/edit/efRJ0uwMB

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Language Bash

main.bash

```
1 #!/bin/bash
2 echo "enter three numbers: "
3 read a
4 read b
```

input

```
enter three numbers:
3
4
7
main.bash: line 6: [: missing `]'
main.bash: line 9: [: missing `]'
7 is largest number

...Program finished with exit code 0
Press ENTER to exit console.
```

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LEAP YEAR:

The screenshot displays the OnlineGDB web interface. The browser's address bar shows the URL `onlinegdb.com/edit/tuA2Ds9-h`. The interface includes a sidebar on the left with navigation links such as "Create New Project", "My Projects", "Classroom", "Learn Programming", "Programming Questions", "Jobs", "Upgrade", and "Logout". The main editor area contains a Bash script for checking if a year is a leap year. The script is as follows:

```
1 #!/bin/bash
2 echo "enter year:"
3 read y
4 year=$y
5 y=$(( $y % 4 ))
6 if [ $y -eq 0 ]
7 then
8 echo "$year is leap year"
9 else
10 echo "$year is not a leap year"
11 fi
12
```

Below the editor, the "input" section shows the execution output:

```
enter year:
2020
2020 is leap year
```

The status bar at the bottom indicates that the program finished with exit code 0. The Windows taskbar at the very bottom shows the date and time as 02:38 PM on 13-02-2023.

shell7 - GDB online Debugger | Code

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onlinegdb.com/edit/tuA2Ds9-h

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Run Debug Stop Share Save Beautify

Language Bash

main.bash

```
1 #!/bin/bash
2 echo "enter year:"
3 read y
4 year=$y
```

input

enter year:
2020
2020 is leap year

...Program finished with exit code 0
Press ENTER to exit console.

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PERCENTAGE:

The screenshot displays the OnlineGDB web interface. The browser's address bar shows the URL `onlinegdb.com/edit/c5fl6Zd_f`. The interface includes a sidebar on the left with navigation links such as 'Create New Project', 'My Projects', 'Classroom', 'Learn Programming', 'Programming Questions', 'Jobs', 'Upgrade', and 'Logout'. The main editor area contains a Bash script named `main.bash` with the following code:

```
1 #!/bin/bash
2 echo "enter number of students: "
3 read n
4 a=1
5 for((a=1;a<=n;a++))
6 do
7 echo "enter student name: "
8 read student
9 echo "english marks"
10 read english
11 echo "science marks"
12 read science
13 sum=$((english+maths+science))
14 per=$((100*sum/300))
15 echo "total=" $sum
16 echo "percentage=" $per
17 done
18
19
```

Below the editor, the 'input' section shows the program's output:

```
97
total= 195
percentage= 65

...Program finished with exit code 0
Press ENTER to exit console.
```

The bottom of the image shows a Windows taskbar with the system clock indicating 02:41 PM on 13-02-2023.

⚡ shell8 - GDB online Debugger | Cod

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Language Bash

main.bash

```
1 #!/bin/bash
2 echo "enter number of students: "
3 read n
4 a=1
```

input

```
enter number of students:
2
enter student name:
monish
english marks
98
science marks
99
total= 197
percentage= 65
enter student name:
guru
english marks
98
science marks
97
total= 195
percentage= 65

...Program finished with exit code 0
Press ENTER to exit console.
```

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02:41 PM 13-02-2023

PRODUCT:

The screenshot displays the OnlineGDB web interface in a browser. The browser's address bar shows the URL `onlinegdb.com/edit/ZvyXrXLHN`. The interface includes a sidebar on the left with the OnlineGDB logo, a welcome message for user `shri29prabhu`, and navigation links for creating projects, viewing projects, classroom, learning programming, questions, jobs, upgrading, and logging out. Social media icons for Facebook, Twitter, and a generic share icon are also present. The main area features a toolbar with buttons for Run, Debug, Stop, Share, Save, Beautify, and Download. Below the toolbar, a file explorer shows `main.bash` selected. The code editor contains a Bash script that prompts for two numbers, `a` and `b`, and performs arithmetic operations: addition, subtraction, multiplication, and division. The output console at the bottom shows the results of these operations: `subtraction=-2`, `product=8`, and `division=0`. The console also indicates that the program finished with exit code 0 and prompts the user to press ENTER to exit the console. The Windows taskbar at the bottom shows the system time as 02:42 PM on 13-02-2023.

shell9 - GDB online Debugger | Cod... (1) WhatsApp

onlinegdb.com/edit/ZvyXrXLHN

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OnlineGDB beta
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shell9

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Run Debug Stop Share Save Beautify Download

Language Bash

main.bash

```
1 #!/bin/bash
2 echo "enter a number: "
3 read a
4 echo "enter a number: "
5 read b
6 sum=$((a+b))
7 echo "sum ="$sum
8 subtraction=$((a-b))
9 echo "subtraction="subtraction
10 mult=$((a*b))
11 echo "product="mult
12 div=$((a/b))
13 echo "division="div
14
```

input

```
subtraction=-2
product=8
division=0


...Program finished with exit code 0
Press ENTER to exit console.
```

88°F Sunny Search 02:42 PM 13-02-2023


shell9 - GDB online Debugger | Cod... (1) WhatsApp

onlinegdb.com/edit/ZvyXrXLHN

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shell9

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


  



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   Run  Debug  Stop  Share  Save  Beautify 

Language Bash  


main.bash



```
1 #!/bin/bash
2 echo "enter a number: "
3 read a
4 echo "enter a number: "
```


input

```
enter a number:
2
enter a number:
4
sum =6
subtraction=-2
product=8
division=0

...Program finished with exit code 0
Press ENTER to exit console.
```

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13-02-2023

NATURAL NUMBERS:

The screenshot shows the OnlineGDB web interface in a browser. The browser tabs include 'shell10 - GDB online Debugger' and '(1) WhatsApp'. The address bar shows 'onlinegdb.com/edit/J85DxYiek'. The left sidebar contains the OnlineGDB logo, a welcome message for 'shri29prabhu', and a list of navigation links: 'shell10', 'Create New Project', 'My Projects', 'Classroom' (with a 'new' badge), 'Learn Programming', 'Programming Questions', 'Jobs' (with a 'new' badge), 'Upgrade', and 'Logout'. Below these are social media icons for Facebook, Twitter, and a plus sign. At the bottom of the sidebar is a 'GOT AN OPINION?' banner and a footer with links for 'About', 'FAQ', 'Blog', 'Terms of Use', 'Contact Us', 'GDB Tutorial', 'Credits', and 'Privacy', along with the copyright notice '© 2016 - 2023 GDB Online'. The main editor area has a toolbar with buttons for 'Run', 'Debug', 'Stop', 'Share', 'Save', 'Beautify', and a download icon. The language is set to 'Bash'. The code in 'main.bash' is as follows:

```
1 #!/bin/bash
2 echo "enter a integer"
3 read m
4 a=1
5 echo " natural numbers: "
6 for((a=1;a<=m;a++))
7 do
8 echo $a
9 done
10
```




Below the editor is an 'input' field and a console window. The console shows the output of the program:


```
10
11
12
...Program finished with exit code 0
Press ENTER to exit console.
```

The Windows taskbar at the bottom shows the system clock as 02:44 PM on 13-02-2023, with a temperature of 88°F and 'Sunny' weather.

⚡ shell10 - GDB online Debugger | Co x (1) WhatsApp x +

← → ↻ onlinegdb.com/edit/J85DxYiek

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main.bash


```
1 #!/bin/bash
2 echo "enter a integer"
3 read m
4 a=1
```


input

enter a integer
12
natural numbers:
1
2
3
4
5
6
7
8
9
10
11
12

...Program finished with exit code 0
Press ENTER to exit console.

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Sunny

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ENG
IN

02:44 PM
13-02-2023

PALIDROME:

The screenshot shows the OnlineGDB beta web interface. The browser tabs include 'shell11 - GDB online Debugger' and '(1) WhatsApp'. The address bar shows 'onlinegdb.com/edit/OhYad1v0e'. The left sidebar contains navigation links: 'Create New Project', 'My Projects', 'Classroom new', 'Learn Programming', 'Programming Questions', 'Jobs new', 'Upgrade', and 'Logout'. Below these are social media icons for Facebook, Twitter, and a plus sign. A banner for 'GOT AN OPINION? SHARE AND GET REWARDED.' is also visible. The main editor area shows a Bash script named 'main.bash' with the following code:

```
1 #!/bin/bash
2 echo "enter a number"
3 read n
4 sum=0
5 temp=$n
6 while [ $n -gt 0 ]
7 do
8   r=$((n%10))
9   sum=$((r+sum*10))
10  n=$((n/10))
11 done
12 if [ $temp -eq $sum ]
13 then
14   echo "palindrome"
15 else
16   echo "palindrome"
17 fi
18
```

The script prompts the user to 'enter a number', reads the input '121', and outputs 'palindrome'. The console output shows 'enter a number', '121', and 'palindrome'. The status bar at the bottom indicates '...Program finished with exit code 0' and 'Press ENTER to exit console.'.


The bottom of the screen shows a Windows taskbar with the date '13-02-2023' and time '02:45 PM'.

shell11 - GDB online Debugger | Co


(1) WhatsApp

onlinegdb.com/edit/OhYad1v0e

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shell11

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



Logout



  

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Language Bash  



main.bash

```
1 #!/bin/bash
2 echo "enter a number"
3 read n
4 sum=0
```

input

```
enter a number
121
palindrome

...Program finished with exit code 0
Press ENTER to exit console.
```

 Search 

88°F
Sunny

ENG
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02:45 PM
13-02-2023

BINARY TO DECIMAL:

The screenshot displays the OnlineGDB web interface in a browser. The browser's address bar shows the URL `onlinegdb.com/edit/h3gHM5XEx`. The interface includes a sidebar on the left with navigation links such as "Create New Project", "My Projects", "Classroom", "Learn Programming", "Programming Questions", "Jobs", "Upgrade", and "Logout". The main area features a code editor with a Bash script for converting binary to decimal. The script defines a function `binaryCon()` that takes a binary number as input and calculates its decimal equivalent using a loop. The console at the bottom shows the program's execution, with the input `10` and the output `resultant decimal number 2`. The status bar at the bottom indicates the system temperature is 88°F and the time is 02:46 PM on 13-02-2023.

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```
main.bash
1  #!/bin/bash
2  echo "enter binary number"
3  read n
4  function binaryCon(){
5      local i=0
6      local num=0
7      while [ $n != 0 ]
8      do
9          digit=$(( $n % 10))
10         num=$(( num + digit * 2**i))
11         n=$(( $n / 10))
12         (( ++i ))
13     done
14     echo "resultant decimal number"
15     echo "$num"
16 }
17 #function call
18 binaryCon
19
20
21
22
```

input

```
10
resultant decimal number
2

...Program finished with exit code 0
Press ENTER to exit console.
```

shell12 - GDB online Debugger | Co x (1) WhatsApp

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Beautify

Language Bash

main.bash



```
1 #!/bin/bash
2 echo "enter binary number"
3 read n
4 function binaryCon(){
```

input

```
enter binary number
10
resultant decimal number
2

...Program finished with exit code 0
Press ENTER to exit console.
```

88°F Sunny

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ENG IN

02:47 PM 13-02-2023

FACTORIAL:

The screenshot shows the OnlineGDB web interface in a browser. The browser's address bar displays `onlinegdb.com/edit/gPRWvk4_Z`. The OnlineGDB sidebar on the left includes the logo, user name `shri29prabhu`, and navigation links like `Create New Project`, `My Projects`, `Classroom`, `Learn Programming`, `Programming Questions`, `Jobs`, `Upgrade`, and `Logout`. The main editor area is titled `main.bash` and contains the following code:

```
1 #!/bin/bash
2 echo "enter a number"
3 read num
4 fact=1
5 while [ $num -gt 1 ]
6 do
7 fact=$((fact * num))
8 num=$((num - 1 ))
9 done
10 echo "factorial is ="$fact
11
```

Below the editor is a terminal window labeled `input` showing the program's execution:

```
enter a number
6
factorial is =720
...Program finished with exit code 0
Press ENTER to exit console.
```

The Windows taskbar at the bottom shows the system clock as 02:48 PM on 13-02-2023, along with weather information (88°F Sunny) and various application icons.